THE DATA REPORTER

by

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The programs on this diskette will allow deletion of data files at the user's discretion. The user is strongly advised, therefore, to retain back-up copies of all programs and data and to exercise great care during data file save and delete to prevent accidental loss of data.

We recommend that the user thoroughly read the accompanying document before running the program in order to avoid problems in use.

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SECTION ONE
INTRODUCTION

SECTION 1
INTRODUCTION

SECTION 1.1 – OVERVIEW

THE DATA REPORTER is the most comprehensive information processing package available for the Apple II* microcomputer. With it, you can perform a host of data storage, retrieval, and summary processes that were formerly only available if you bought 3 or 4 separate (and probably incompatible) pieces of software. THE DATA REPORTER includes three major programs that all work together, and a number of special purpose accessory programs to provide additional features that are only needed occasionally. The major programs are:

1) A comprehensive database program which allows you to specify any number of data formats, enter, edit and update data; sort, search, and print any or all of your data; and in general allows for access, summary, and retrieval of your data at any time.
2) A powerful text editor with which you can compose and print reports, letters, forms, contracts, invoices, etc. Data from your database can be mixed anywhere within the reports you generate, allowing form letters, customized data reports, etc. to be produced.
3) A data graphing and analysis program which lets you produce scatter graphs, line graphs, bar charts, and pie charts. You can find minimums, maximums, means, standard deviations, etc. on any or all of your data files.

We have tried, in assembling THE DATA REPORTER, to keep you, the end user, foremost in our priorities. We don't believe that you should have to have special programming abilities or complex esoteric knowledge in order to use these programs to their fullest potential. We wanted it simple and easy to use while maintaining the quality and power you expect when purchasing your business software. Each of the programs included in THE DATA REPORTER is described in detail in the following sections. Some of the features and capabilities of these programs may include concepts not familiar to many users. A glossary defining such terms and providing some cross references to related text appears at the end of this section.

* Apple II is a trademark of Apple Computer, Inc.

SECTION 1.2 – SYSTEM REQUIREMENTS

THE DATA REPORTER is supplied on a DOS 3.3 (16 sector) diskette for the Apple II or Apple II Plus microcomputer. It requires at least one disk drive, 48K of RAM memory, and the Applesoft language in firmware (Apple II Plus or Apple II with Applesoft board or language system).

SECTION 1.3 – BACKUP POLICY

All of the programs and files on THE DATA REPORTER diskette can be transferred or copied to other disks as required. To run any of the programs on the disk, however, requires that the original master disk be booted using the procedure described in Section 1.4. Once the initial greeting program has been run and the menu illustrated in Figure 1.2 appears, you can then insert

any other disk on which customized versions of THE DATA REPORTER have been saved.

Since any disk can be accidentally damaged or ruined by fingerprints, heat, coffee, or scratches, you are strongly recommended to fill out the User Registration card in the front pocket of this notebook, and return it with $5.00 to *Synergistic Software.* The $5.00 buys you a backup copy of your master diskette, and registers you in our records as a legitimate owner of THE DATA REPORTER. The latter privilege entitles you to updates, enhancements, and announcements of accessory packages as these may become available. Further, advice, consultation and answers to questions about THE DATA REPORTER can *only* be provided to registered owners.

SECTION 1.4 — GETTING STARTED

Let's take a look now at what THE DATA REPORTER Looks like and how you use it. The diskette in the front pocket of this notebook is your master diskette and will be referred to that way, throughout this manual. Remove the disk from its pocket and insert it in your disk drive at this time. Be sure that the diskette label faces in the direction indicated in Figure 1.1.

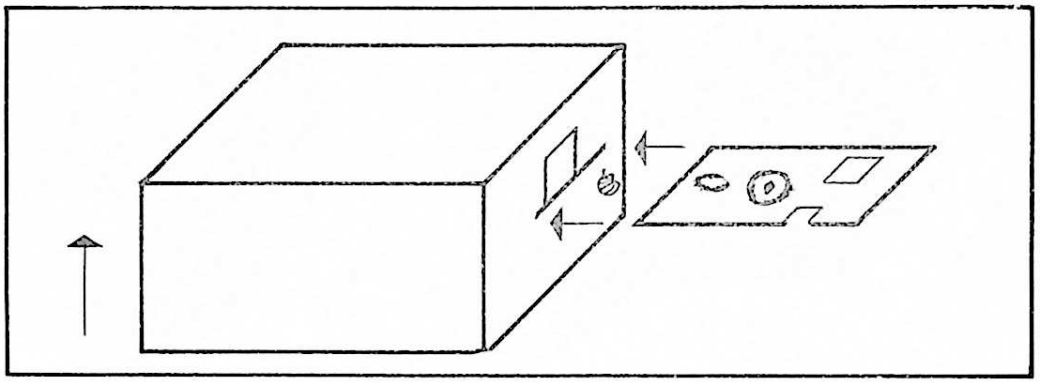

Figure 1.1
DISKETTE INSERTION

After the diskette has been inserted into your disk drive, turn on your Apple. If you have an autostart ROM in your Apple, your disk drive should start up and a title page will appear, followed immediately by the menu in Figure 1.2. For those without an autostart ROM, you will need to boot your system using the procedures described in the DOS user's manual.

```
THE DATA REPORTER

1. RUN THE SETUP PROGRAM
2. RUN AN APPLICATION PROGRAM
3. RUN THE REPORT GENERATOR
4. RUN THE DEMONSTRATION
5. QUIT
   WHICH?
```

Figure 1.2
INITIAL MENU

Once the Initial Menu appears, you can select any of the options listed by simply pressing the numbered key adjacent to each option. For now, select menu item 5. A catalog of the disk's contents will be displayed. The programs and files that you see on the screen are all on your master diskette, and will also appear on every application diskette you make. The name and purpose of each program file is described in Table 1.1.

To return to the menu, type RUN and press RETURN. The menu will reappear in a moment. You might next wish to run the demonstration program in order to familiarize yourself with THE DATA REPORTER, before proceeding with the other options. In any case, you should read the descriptions and operating instructions that follow before proceeding.

TABLE 1
DISK CONTENTS

NAME	DESCRIPTION	SECTION
HELLO	Initial Menu.	1
SETUP PROGRAM	Program which customizes DATA REPORTER for specific applications.	2
DATA REPORTER	The master database program which, modified at your direction, performs most of the data manipulation functions of this package.	3
REPORT GENERATOR	A sophisticated text editor which allows you to define and print form letters, customized reports, etc.	4
PLOTTER	Performs statistical analyses on data files, and plots scatter graphs, line graphs, bar charts, or pie charts of the data.	5
REFORMATTER	Updates record format of data files if more or fewer fields or characters than originally specified are required.	6
SORT/MERGE	Sorts and combines files (up to one full disk of files).	7
LABELS	Label printing utility.	8
GETCHAR	Machine language routine for upper/lower case characters input on the REPORT GENERATOR.	4
DEMO DATA	Data file to be used for demonstration purposes.	1.4
DEMO REPORT	A report that can be used to demonstrate THE REPORT GENERATOR.	4
SETUP	The setup characteristics of the demonstration data base.	1.4

RUN THE SETUP PROGRAM (Menu Item 1)

THE DATA REPORTER is a general purpose tool, written to be used in a wide variety of applications on a wide variety of hardware systems. The program must be modified (don't worry, it does all the work), to fit your particular requirements and hardware. Do you need, for example, a mailing label program, an inventory control program, or an accounting program? Will you use a hard disk drive, or one or more floppy disks? Do you have a printer? If so, what kind and what size paper? These questions among others must be answered to create what we will refer to hereafter as an applications disk. Your applications disk will contain customized versions of THE DATA REPORTER programs, modified specifically for your needs.

The actual modification is quite simple, and is performed by selecting menu item 1 from the Initial Menu. A SETUP PROGRAM will be run and you will be asked a series of questions about your needs. The SETUP PROGRAM is described in detail in Section 2.

After you have setup an applications disk, you may find that you have changed your mind about what you need (or changed your hardware) and wish to change the setup. In that case, again simply select menu item one. The SETUP PROGRAM can also be used to edit a setup without having to reanswer all of the questions.

Finally, if you have used a related *Synergistic Software* product called THE MODIFIABLE DATABASE, you should run the SETUP PROGRAM to convert your data file names to begin with a backslash (\) character. Since this character cannot be easily typed from the Apple keyboard, the SETUP PROGRAM will rename all data files for you.

RUN AN APPLICATION PROGRAM (Menu item 2)

After an application disk has been setup, you can run it by pressing '2' after the Initial Menu has appeared. The program will then instruct you to insert your application disk into the disk drive and press RETURN. After you press RETURN, your application program will be run. A description of the operation of THE DATA REPORTER (which includes your application program) is presented in Section 3.

RUN THE REPORT GENERATOR (Menu item 3)

THE REPORT GENERATOR can be used to format and print the reports or form letters your data processing requires. Alternatively, it can be used on a 'stand alone' basis to enter, store, retrieve, and print text of any sort. To use the REPORT GENERATOR, select menu item 3 from the Initial Menu. The program will instruct you to insert your application disk (if desired) and press RETURN. When you do so, the REPORT GENERATOR will be run. Its operation is described in Section 4.

A demonstration report called DEMO REPORT which can be loaded and printed using the procedure described in Section 4 is included on the original diskette.

RUN THE DEMONSTRATION — (Menu item 4)

A demonstration application program is provided on the master diskette to give you a look at how THE DATA REPORTER operates, before you set-

up your own application. The demonstration program is an application which stores data about a fictional company's sales. The data can be organized and summarized for such diverse uses as printing a list of all outstanding accounts receivable; totalling sales by salesmen, store, or region of the country; totalling sales by month; and listing all of the sales made to a particular customer.

To run the demonstration program, press '4' while the Initial Menu is displayed. The operation of the program is as described in Section 3.12. The data can be manipulated in a variety of ways, to produce the summaries or outputs described above.

QUIT (Menu item 5)

As described earlier, the QUIT option simply displays a catalog of the disk contents, and terminates the program. Your Apple will be left in normal Applesoft BASIC. Any Applesoft or DOS commands or operations can now be performed.

SECTION 1.5 – CONVENTIONS

Throughout this document and in all of the programs of THE DATA REPORTER, the following conventions apply.

SINGLE KEYSTROKE COMMANDS

All of the commands and most inputs for THE DATA REPORTER, are made using single keystrokes. This means that if a menu of any kind is displayed on the screen, the options in the list can be selected by pressing one key; you do not have to press RETURN. All commands and many inputs are selectable from menus such as the one illustrated in Figure 1.2. Other examples might include:

1) Loading a data file. A numbered list of all data files on the disk is presented. Data files can be selected by pressing the indicated number key.
2) Selecting a field of your records for editing, subtotalling, etc. A numbered list of all the fields is represented. To allow for single keystroke entry of field numbers, fields numbered higher than 9 will be selected by an alphabetic character. Pressing 'A' will select field 10, 'B' selects field 11, etc. Table 1.2 lists the fields from 1 to 35, and the appropriate key to select for each. This convention may require a little getting used to, but after some use it becomes a real time saver.

ESCAPE (the ESC key)

Since it is always possible to inadvertently press the wrong key and start an undesirable sequence of events, THE DATA REPORTER package has had several safeguards built in. First, in THE DATA REPORTER itself, the ESC key can be pressed at any time to escape from an undesirable condition. The program will return to the MAIN MENU, and you can try again. The ESC key can be pressed at *any* entry. The only time ESC will not work is if you initiate a printout, and your printer is either not on or not plugged into the slot that you specified. In this one case, you will need to use the alternative escape feature provided by the RESET key.

RESET

The RESET key is a universal escape. In all of the programs in the THE DATA REPORTER package, RESET can be pressed at any time to return to the primary menu for that program. The program will not be damaged in any way, and no data will be lost.

FIELD NUMBER	KEY TO SELECT	FIELD NUMBER	KEY TO SELECT
1	1	19	J
2	2	20	K
3	3	21	L
4	4	22	M
5	5	23	N
6	6	24	O
7	7	25	P
8	8	26	Q
9	9	27	R
10	A	28	S
11	B	29	T
12	C	30	U
13	D	31	V
14	E	32	W
15	F	33	X
16	G	34	Y
17	H	35	Z
18	I		

TABLE 1.2
SINGLE KEYSTROKE FIELD SELECT

ERROR CODES

Whenever an error of any kind occurs, an error message will appear such as:

DOS ERROR: I/O ERROR AT
LINE 382. PRESS RETURN

This particular error could occur if you left a disk drive door open while attempting a disk access or if you tried to use an uninitialized diskette. The error codes are all taken directly from the Apple reference manuals. To obtain more information about a particular error code, you should look at Appendix C (page 115-117) of the Applesoft manual for errors identified as 'A/S ERROR', or at Appendix B (pages 114-122) of the DOS manual for errors identified as 'DOS ERROR'.

LOWER CASE LETTERS

THE DATA REPORTER and its REPORT GENERATOR program both allow direct entry of lower case characters from the Apple keyboard. The programs do not, however, make any provision for correctly displaying lower case. A standard unmodified Apple will not correctly display lower case characters. If you wish to be able to use and display lower case characters

properly, you will need to equip your Apple with one of the many hardware accessories that provide this capability. The least expensive (at the time this document was released) are the single chip lower case adaptors. You should check with your nearest dealer for the options available in this area. Several manufacturers of lower case adapters are listed in the technical section, Section 9.5.

SECTION 1.6 – GLOSSARY

AMPERSAND ROUTINES	– Machine language routines that can be accessed from Applesoft programs by use of the Ampersand (&) character.
APPLICATION DISK	– One of your diskettes onto which customized versions of all of THE DATA REPORTER programs have been saved.
APPLICATION PROGRAM	– A copy of THE DATA REPORTER that has been customized for a specific purpose.
BOOT	– Load DOS (disk operating system) and a greeting program by typing PR#6 (if controller is in slot #6) or by turning on the Apple if it has an autostart ROM.
DATA DISK	– A diskette on which data alone is stored.
DATABASE	– A data storage and retrieval system.
DEFAULT	– A normal value that will be used automatically for an input unless some other value is specified.
DISK ACCESS	– To look at the contents of a disk (catalog), retrieve a file from disk (LOAD), or put a file on the disk (SAVE). See Section 3.9.
DITTO	– Duplicate a previous statement. In THE DATA REPORTER, this is used to enter repetitious data. Pressing the colon key will enter in the current record whatever data was in that field of the previous record. See Section 3.4.
FIELD	– A designated portion of a set of data. A number of fields make up a record. Each field is a series of characters that describe or identify one aspect of the record, such as last name in a mailing list application.
FILE	– A collection of records that is stored on disk as a unit and loaded for processing as a unit. The number of records per file varies as illustrated in Table 3.1.
FORMAT/ REFORMAT	– To specify the nature of the records in your database including the number of fields and lengths of each field.
GREETING PROGRAM	– The program that automatically loads and runs when a disk is booted. It is designated when the disk is initialized. The greeting program is usually called HELLO.
HARDWARE SYSTEM	– Your Apple computer and all of its associated peripheral devices such as disk drives, printers, etc.
INITIALIZED DISK	– A blank disk which has been prepared to receive data by issuing the DOS command INIT. See DOS manual.
MASTER DISK	– The copy of THE DATA REPORTER that accompanied this document.
MERGE	– To combine several files of sorted data in such a way that the overall sorting is maintained.

ON-LINE	— Data actually in computer memory ready for instant access as opposed to on-disk which has a slight access delay time. One file may be on-line at a time.
OUTPUT	— Any method of printing or graphing your data. This includes simple lists of records, reports produced by the REPORT GENERATOR, graphs or statistical summaries produced by the ANALYZER/PLOTTER, or labels printed by the LABEL program.
RECORD	— A complete set of data about one individual, account, etc. It will include a number of data units (fields) about that entity such as name, address, account, age, etc.
STRING	— A series of alphabetic, numeric, or special characters which make up the information contents of a field.
SUBSTRING	— A part (beginning, middle, or end) of a string.

SECTION TWO
THE SETUP PROGRAM

SECTION 2
THE SETUP PROGRAM
SECTION 2.1 – OVERVIEW

Before you actually begin using THE DATA REPORTER to handle your data storage/processing needs, you will need to customize it to match your hardware system and your particular application. Specifically, this means answering the questions listed in Table 2.1. Before running the SETUP PROGRAM, you should know the information that will be required in at least approximate form. You can always return to the SETUP PROGRAM if you change your mind or your system, and modify the setup. If you change any items of data formatting (for example, number of fields or field lengths) after already establishing data files, you will also need to run the RECORD REFORMATTER program (see Section 7) on these data files to update them to the new format. This is easy to do and can be done at any time. Your database should never be considered to be cast in concrete, but should be modified whenever the need arises.

The SETUP PROGRAM also allows you to update data files that have been produced with THE MODIFIABLE DATABASE, another *Synergistic Software* product.

SECTION 2.2 – GETTING STARTED

Before you begin a setup, you should make a copy of your DATA REPORTER diskette; this copy will become your application disk after the setup has been completed. You can use your master disk as an application disk if you wish, but we strongly recommend that it be retained simply as a boot and setup disk in order to prolong its life. To make a copy of THE DATA REPORTER, insert the DOS 3.3 System Master disk that came with your Apple into your disk drive and boot normally using the techniques described in Chapter 2 of your manual. When the flashing cursor appears, type RUN COPYA, and press RETURN. Refer to pages 38-40 for instructions for the COPYA program. At the end of the copy, a READ ERROR will occur. Don't worry, that is normal for this disk. All programs required should be on your new disk. To verify this, type CATALOG and press RETURN. This copy disk will not boot but will run properly if run from the Initial Menu after booting THE DATA REPORTER master disk.

After you have made a copy of THE DATA REPORTER, type 'RUN HELLO,S6,D1', (assuming that your master disk is in slot 6, drive 1), and press RETURN. If you have any problems running HELLO, try rebooting your system as described in Chapter 2 of your DOS manual with THE DATA REPORTER inserted in your boot disk drive. If difficulty persists, try your backup copy or contact your local dealer or *Synergistic Software* for assistance. Please remember that *Synergistic Software* can only help purchasers who have filed their program registration cards with us.

DATA REQUIRED	SAMPLE ANSWERS (Used in DEMO DATA file)
1. WHAT DO YOU WISH TO CALL THE NEW PROGRAM?	SALES JOURNAL
2. WHICH SLOT IS YOUR PRINTER IN?	1
3. DO YOU WISH RIGHT OR LEFT JUSTIFICATION OF NUMERIC/MONETARY DATA (R/L)?	R
4. HOW MANY FIELDS IN YOUR RECORDS (1-35)?	11
5. DOES YOUR PRINTER REQUIRE A PRINTER DRIVER ROUTINE? IF SO, ENTER CALL NUMBER.	(RETURN)
6. DOES YOUR PRINTER REQUIRE PRINTER CONTROL CHARACTERS? IF SO ENTER THEM.	CTRL-I80N
7. ARE YOU USING SINGLE SHEETS OF PAPER OR CONTINUOUS FORMS (S/C)?	C
8. HOW MANY LINES LONG IS YOUR PAPER?	66
9. HOW MANY CHARACTERS WIDE IS YOUR PAPER?	80
10. HOW MANY LINES SHOULD BE LEFT AS A TOP AND BOTTOM MARGIN ON YOUR PRINTOUTS?	3
11. HOW MANY SPACES FROM THE LEFT MARGIN SHOULD THE PAGE NUMBER BE PRINTED AT?	40
12. DOES YOUR PRINTER REQUIRE A LINE FEED CHARACTER (SUCH AS CTRL – J)?	N
13. FOR EACH FIELD, SPECIFY:	
A. FIELD LENGTH IN CHARACTERS (1-50)?	
B. FIELD TITLE (10 CHARACTERS)?	
C. FIELD TYPE (ALPHANUMERIC, NUMERIC, OR MONETARY - A, #, $)?	
D. SHOULD FIELD BE INCLUDED IN A HORIZONTAL TOTAL?	
E. SHOULD EACH FIELD BE PRINTED IN YOUR STANDARD OUTPUT REPORTS? IF SO, HOW MANY SPACES FROM THE LEFT MARGIN?	
14. WHICH FIELDS SHOULD BE USED FOR THE QUICK LIST?	6 AND 11
15. DO YOU WANT ANY CALCULATED FIELDS (Y/N)?	N

TABLE 2.1
SETUP PROGRAM QUESTIONS

Once HELLO has been run, the Initial Menu described in Section 1 will appear. The SETUP PROGRAM can be selected by pressing the '1' key. After the SETUP PROGRAM runs, the options listed in Figure 2.1 will be presented. The first time that you run the SETUP PROGRAM, you will probably start with option 1 to setup your own program customized for your particular needs. Each of the SETUP PROGRAM options will be described below.

SECTION 2.3 – SETUP A NEW APPLICATION DISK (OPTION 1)

If the first option is selected, you will be asked the series of questions listed in Table 2.1. Your answers to these questions will specify the nature of the program that you are producing, be it an accounting package, inventory control, personnel records, or whatever. During and after entry of the requested data, you will repeatedly be given opportunities to change your mind or approve the entries made. Changes can easily be made up until the actual modification of your application disk. Even then, you can always rerun the SETUP PROGRAM, and modify a setup using option 2. Several of the questions require a little explanation and a few hints.

The first question you are asked is for a title for your application disk. This should be a descriptive term such as 'INVENTORY CONTROL' or 'ACME, INC. JOURNAL PROGRAM', and is used to help you keep your programs straight once you have setup a number of different applications.

```
1. SETUP A NEW APPLICATION DISK
2. MODIFY AN EXISTING DISK
3. UPDATE MODIFIABLE DATABASE FILES
4. RETURN TO THE INITIAL MENU
5. QUIT
```

Figure 2.1
SETUP PROGRAM OPTIONS

The second question inquires about your printer interface slot. The printer interface slot is the I/O slot inside the Apple into which the card that connects to your printer has been inserted. If you don't know to which slot your printer interfaces, you should gently open the top of your Apple and look. The slots are numbered directly to the rear of each slot.

The next question concerns right vs. left justification for numeric and monetary data. With left justification, your monetary and numeric data will be stored and printed as illustrated in Figure 2.2, while right justification is illustrated in Figure 2.3. Left justification will sometimes provide a more compact printout, but right justification is generally a much better option. With right justification, the decimal points in your monetary fields will neatly line up, allowing for proper comparisons or additions. Furthermore, only right justified numeric data will sort properly as explained in Section 3.7.

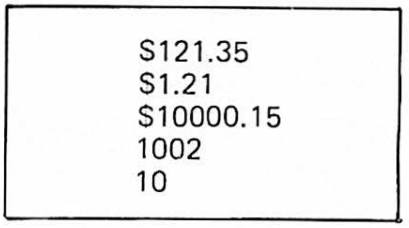

Figure 2.2
LEFT JUSTIFIED DATA

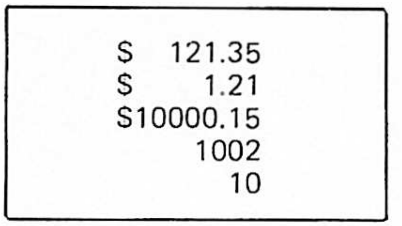

Figure 2.3
RIGHT JUSTIFIED DATA

You must next provide some information about your printer, its requirements, and the kind of paper being used. If your system does not at this time include a printer, simply press RETURN after each question to enter the default data. It can always be changed later, if required. Similarly, if any of the questions do not appear to apply to your printer, simply use the default data by pressing RETURN when asked.

Printer control characters vary from printer to printer. Many printers do not require any at all, and for these, this input can be ignored. The most commonly required printer control sequence is Control I 80 N to obtain 80 column output on the printer or Control I 128 N to obtain 128 column output, etc. This control sequence is required by most printers with a parallel interface. Your printer operation manual should detail this or any other required control sequences. To enter Control I 80 N, you should depress the CTRL (control) key. Holding it down, press the 'I' key. Releasing both, type '80N' normally. If after setting up an application program, you find that printouts are never more than 40 characters wide, this input is probably the culprit.

The next questions about printer output concern paper length, width, and whether it is continuous form or single sheets. Standard values are shown in Table 2.2, although others are possible.

WIDTH INCHES	LENGTH INCHES	WIDTH CHARS.	LENGTH CHARS.
8½	11	80	66
14	11	132	66

TABLE 2.2
TYPICAL PRINTER PAPER DIMENSIONS

The last printer related question is whether a line feed character is required by your printer. Most printers do not require this, so if you are unsure, answer No. During your first printout, if you have no line skips at the top of each page, then you did need this feature. Rerun the SETUP PROGRAM and edit this one question.

The next set of questions deal with field descriptions for your records. Most of these inputs are self-explanatory, but a few hints may be helpful. Field length should be kept as short as possible, while still leaving room for your data. Longer fields mean fewer records per file and per disk, so keep them short. In monetary fields, be sure to leave room for a decimal point and pennies. If your largest dollar amount is $9999, specify 7 spaces for field

length to leave room for $9999.00. You don't need to leave room for a dollar sign.

There is room on-line for 22680 characters of data at any one time. If you store your data files on separate data diskettes (with no programs on them, just data files), you should be able to get 5.6 full files (126,976 bytes per disk, divided by 22680 characters per file) on each diskette. If you don't have completely full files, you can, of course, get more files on each disk. You can simply continue saving files to a disk until a 'DISK FULL' message appears. At that time, delete the last file you attempted to save using the methods described in Section 3.9. This is necessary since only part of that file was probably saved before the 'DISK FULL' condition occurred. Then, you should resave the on-line file to a new data disk. Several blank, initialized data diskettes should always be available for this eventuality.

RECORD LENGTH (in chars)	RECORDS PER FILE (records)
10	2268
20	1134
30	756
50	452
75	302
100	226
125	181
150	151
200	113
250	90

TABLE 2.3
RECORD NUMBER VS. LENGTH

Field type should be specified to be alphanumeric *unless* you wish to perform arithmetic operations or totals on that field. An account number, for instance, may be all numbers but you would never want to total that field, add to it, multiply it, etc. That field should, therefore, be specified as alphanumeric. Part numbers, ID numbers, and street addresses similarly should be alphanumeric. Numeric fields should only be quantities such as number of parts, numbers sold, etc., while monetary fields are only dollar amount data.

The question about totalling, #13D, refers to horizontal, not vertical totalling. Vertical totalling is performed automatically on all numeric and monetary fields and involves the addition of the contents of these fields for all of your records. Total accounts receivable, for instance, is a vertical total of all your records' amount due fields. Horizontal totals, on the other hand, are totals *within* a record. One record might contain sales price, shipping charges, tax, and total due, where total due is the horizontal total of the

others. If a horizontal total is specified, the total will be stored in the *last* field automatically. Be sure to set up your fields with this in mind.

When asked for the TAB for a given field, you should input the number of spaces from the left margin at which you want each field printed. If you do not want a field to be printed in the standard output (see Section 3.8), just press RETURN when asked for the TAB, and it will not be printed. When specifying TABs, be sure to leave enough room for your field titles. If your titles are longer than your field length, and you specify tabs appropriate for the data only, you may get the problem illustrated in Figure 2.4.

PATIENT	PATIENTAGEHEIGHT-INSWEIGHT		
JOHN SMITH	7	42	95
ALAN DOE	8	45	102
FRED JONES	8	51	110
ANDY PERKIND	7	40	91

Note that data lines up nicely but headers are crammed together. The headers should be shorter or the TABs wider.

Figure 2.4
SAMPLE PRINTOUT SHOWING TABBING ERROR

Question #14 refers to which fields should be included for the QUICK LIST option (see Section 3.5). Any two fields (or just one if you desire) can be selected. The QUICK LIST provides a rapid scanning of your records to the screen in which only 1 or 2 relevant fields are displayed.

The last question allows you to specify an automatic calculation that will be performed during data entry. You can have any two fields mathematically combined (+,- *, or /) and the results stored in a third field. An example application might be entering a sales value and a commission percentage (listed as a decimal, e.g. .15 = 15%). The commission amount will be automatically calculated and stored in a third field (with no entry required). Note that the third field into which the calculated data will be placed *must* come after (higher field number) the fields used in the calculation.

After answering the last question, you may review your entries, print a summary of your entries, or modify your application disk. In the latter case, you will be instructed to insert your previously prepared application disk and press RETURN. The disk will be altered as you specified during the setup. After the alteration is complete, press RETURN, and the disk in your drive will be run (insert the master disk to return to the Initial Menu, or retain your application disk if you want to try out your new program).

SECTION 2.4 – MODIFY AN EXISTING DISK (OPTION 2)

To change a setup made previously, select option 2 from the SETUP PROGRAM menu. You will be instructed to insert the disk to be modified into your disk drive and press RETURN. The setup used on that disk will be read, and you will be allowed to edit it as desired. Lists of the current answers to the questions will be displayed. You can change any of this data by pressing the number next to each line, and reentering that data. Figure 2.5 illustrates a sample correction of the program title, for instance, made by pressing '1' to change line 1.

When all of the entries displayed are correct, press RETURN and more questions will be displayed. You can quickly scan through the entire list and change the one or two items that are not correct. Your new setup will then be saved to your application disk.

```
GENERAL INFORMATION

WHAT DO YOU WISH TO CALL THE NEW
APPLICATION PROGRAM?

1.  PROGRAM NAME:SALES JOURNAL
2.  PRINTER SLOT=1
3.  JUSTIFICATION (0=LEFT, 1=RIGHT)=1
4.  NUMBER OF FIELDS=11

CHANGE ANY (1-4, RETURN=NONE)?
```

Figure 2.5
SETUP MODIFICATION SAMPLE SCREEN

SECTION 2.5 – OTHER OPTIONS

Selecting 3 from the SETUP PROGRAM menu will let you update the MODIFIABLE DATABASE data files so they can be used with THE DATA REPORTER. As mentioned in Section 1, this simply involves renaming each of the files so that they begin with a backslash character that can be read by THE DATA REPORTER's special disk access routines. After '3' is pressed, you will be instructed to insert your MODIFIABLE DATABASE disk and press RETURN. All of the data files on that disk will be updated, and you can then continue with other disks or return to the SETUP PROGRAM menu for other options.

Selecting '4' from the SETUP menu will simply redisplay the Initial Menu from which you can run your application program, while option '5' ends the program leaving you in Applesoft BASIC.

SECTION 2.6 – RUNNING YOUR APPLICATION PROGRAMS

To use your application disk, now or at any time in the future, you *must* turn on your system (boot) *with the master disk in your disk drive.* When the Initial Menu appears (see Figure 1.2), press '2' to RUN AN APPLI-

CATION PROGRAM. You will be instructed to insert your application disk and press RETURN. Your application program will then be run.

Your application disk can be copied using the standard Apple copy program, COPYA, on the System Master disk. You should make a backup copy of your application to insure that you never lose your setup. Data files can be stored on the application disk, but it is better to save them to separate data disks which are also backed-up. Remember that the cost of a few disks rarely compares with the labor cost of entering the data or the value of the information to your business. The price of a few disks to insure that you never accidentally lose data or programs is a minor investment.

SECTION THREE
THE DATA REPORTER

SECTION 3
THE DATA REPORTER
SECTION 3.1 – OVERVIEW

THE DATA REPORTER is the central program of this entire package. It allows data to be entered, saved, corrected, retrieved, reviewed, or printed. It allows your data to be reorganized in virtually any way at any time. THE DATA REPORTER also provides access to all of the subsidiary programs described in later sections.

To fully understand the operation of THE DATA REPORTER, a few key terms should be briefly discussed. THE DATA REPORTER allows you to construct a 'database' or master file of data from which a wide variety of information can be extracted. The data is composed of a large number of 'records', each of which deals with some individual or data element such as a client, a supplier, an inventory item, etc. Each record is in turn composed of a number of 'fields' which identify aspects of that record. A mail list record, for instance, is composed of name, address, city, state, and several other fields.

The database is stored 'on-disk' in a number of 'files'. These files are simply chunks of your database small enough to be loaded 'on-line', or into the computer, simultaneously. Loading 100 or 200 record items at a time allows for viewing, updating, or correcting of a number of records without repeated and tediously slow disk accesses between each. Searches and sorts of on-line records are also infinitely faster than their on-disk equivalents.

THE DATA REPORTER combines the speed and ease of use of on-line data management systems with the large size and flexibility of the on-disk systems by providing for both on-line and on-disk searches, sorts, prints, etc. We have tried to maintain an optimum balance of speed and flexibility.

NOTE: Any time you alter any records in the on-line file by editing, adding, deleting or sorting records, you *must* save the results to disk using the DISK ACCESS commands (see Section 3.9) if you want them to be there the next time you run the program.

SECTION 3.2 – THE MAIN MENU

When THE DATA REPORTER (or the demonstration program or any application disk) is run, the MAIN MENU illustrated in Figure 3.1 will appear. From the MAIN MENU all of the functions of THE DATA REPORTER and all of the accessory programs on the disk (except SETUP) can be accessed and used. Each of the manu options listed can be commanded by simply pressing the numbered key adjacent to each option. These options will be described in detail in the following sections.

The MAIN MENU also specifies several important pieces of information about your application program's status. The first line of the display contains the name of your application program. If you have setup four or five application programs for different uses, this will give you a clue if you accidentally run the wrong one. At the bottom of the screen, you will also see summary information about the data file with which you are currently working. When your application program is first run, no data will be on-line. The file name will be blank, and the record count will display, for example, '0 OF 200 RECORDS'. The number of records possible per file will vary with the length of your records. Your application may say '0 OF 120 RECORDS' or '0 OF 380 RECORDS'. In any case, you have 0 records on-line until you select and load a data file using the DISK ACCESS option (see Section 3.9). The program does not automatically load a data file because eventually you

will have many such files and the program cannot know with which one you are going to wish to work at any given time.

```
                SALES JOURNAL MAIN MENU

1)  . . . START A NEW FILE
2)  . . . ENTER RECORDS
3)  . . . LIST
4)  . . . SEARCH
5)  . . . SORT
6)  . . . OUTPUT
7)  . . . DISK ACCESS
8)  . . . SPECIAL FUNCTIONS
9)  . . . TERMINATE

    50 OF 200 RECORDS
    FILE = DEMO DATA
    WHICH?
```

Figure 3.1
MAIN MENU

SECTION 3.3 – START A NEW FILE (Menu item 1)

Selecting option #1 will allow you to start a new working data file. This will, of course, cause all the records currently in memory to be erased. A warning message to this effect appears when '1' is pressed, allowing cancellation of the command. This warning helps prevent accidental erasure. You are then asked to supply a name for the new file; this name is held by the computer to show you (in the MAIN MENU, for example) what file you currently have in memory. After the selection of a file name, record entry begins (see Section 3.4 below).

It is not necessary to start a file in order to begin entering records. A file may be started with the ENTER RECORDS option (see Section 3.4), and the file name selected when saving the file to disk (see Section 3.9) Option #1 is *only* required when it is desirable to erase all records of the current working file from memory.

SECTION 3.4 – ENTER RECORDS (Menu item 2)

Option #2, ENTER RECORDS, allows the entry of new records into memory. When option #2 is selected, a blank record or video form based on your setup is displayed (see Figure 3.2). You are prompted with the names of each field to be entered. The maximum number of characters associated with each field is indicated by a row of underscore characters over which the field's contents are typed. Figure 3.2 illustrates this feature. You are then prompted for the input to be made for that field.

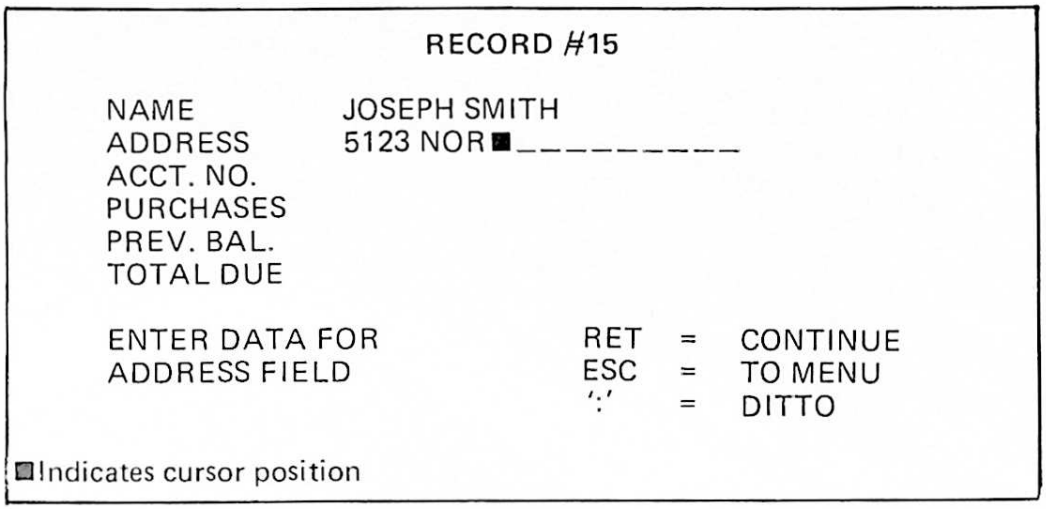

Figure 3.2
SAMPLE RECORD ENTRY

During data entry mode, you will notice some commands located in the lower right corner of the screen as can be seen in Figure 3.2. The RETURN key will continue on to the next field, the ESC key will return you to the MAIN MENU, and the colon (:) key will duplicate what was typed in the previous record for that field. Any other information that is typed will be entered into that field after the RETURN key is pressed to indicate the end of that entry. While entering a field, you can type a CTRL – A (this is done by holding down the key marked 'CTRL and pressing the A key) to switch between upper and lower case for entry. See Section 1.5 for cautions about lower case. Pressing ESC to return to the MAIN MENU will not save the record that is currently being entered unless all fields have been entered.

NOTE: When entering contents of a monetary field, it is not necessary to type a '$' as the program automatically provides one.

After the record has been entered, the commands will change as indicated in Figure 3.3. The arrow keys will display the previous record (the left arrow key) or take you directly to the next blank record for input (the right arrow key or RETURN). The ESC key as above will return you to the MAIN MENU. Pressing the 'E' key after the record has been entered will allow you to edit any of the fields entered. To the left of each field will appear a number, and you will be asked for the number of the field to be edited. Typing a field index character will allow you to edit that field. You may retype the contents of that field, use the arrow keys to trace over it and change just one or two characters, or type '+' or '-' followed by a number to add to or subtract this number from the numeric content of the field. After pressing the RETURN key, the altered record will be shown, and you may give another command such as enter the next record (the right arrow key). The 'D' key is for, you guessed it, delete. The computer will ask 'HOW MANY?', and you would respond with the number of records you want deleted. Pressing zero (0) will delete no records. Typing a one (1) will delete

RECORD #15

NAME	JOSEPH SMITH
ADDRESS	5213 NORTH MAIN
ACCT. NO.	C12759-R
PURCHASES	$215.06
PREV. BAL.	$ 50.02
TOTAL DUE	$265.08

ARROWS	=	NEXT RECORD
ESC	=	RTN TO MENU
'E'	=	EDIT
'D'	=	DELETE
'P'	=	PRINT
'/'	=	SCROLL

The scroll option is only present if you have more than 8 fields.

Figure 3.3
OPTIONS AFTER ENTRY

only the current record you see on the screen. Entering a number greater than one will delete that number of records starting with the record currently shown. If you enter a number larger than the number of records left from the current record to the end of the file, all records from that point to the end of the file will be deleted. Use extra caution with the delete command, as a deleted record is absolutely impossible to retrieve without loading a file containing that record from disk. Pressing the 'P' key after the record has been entered will cause that record to be printed to your printer. You may want to use this feature to keep a running account of each day's transactions.

The final command available after each record is entered is the '/' (slash key located next to the right hand shift key). This command will appear on the screen only if your number of fields is greater than eight (8). The command is labeled 'SCROLL' as it will allow you to see the next eight fields of your record. Multiple usage of this key will continue to show you the next eight fields of each record until the end of the record. At the end of the record this key will show you the first eight fields again.

The number of records that can be in memory at any one time depends on the length of each record that you specified during the SETUP program. When the current working file is full, you will be informed 'FILE FULL – START A NEW FILE'. Note that your current working file *must* then be saved to disk (see Section 3.9 DISK ACCESS) and a new file started (see Section 3.3) before record entry can continue. *Records are not automatically saved;* this must be done with the DISK ACCESS option.

SECTION 3.5 – LIST/MODIFY (Menu item 3)

The LIST/MODIFY option, #3, is used to look at the records that you have entered and make whatever corrections may be required. This option is used only to work with whatever records are on-line. When you select LIST/

MODIFY, you will first be asked with which record number you wish to begin. The default record number is 1, so pressing RETURN when asked for the record number will begin the list with record number 1.

The second question asked is whether you wish a QUICK LIST. If you answer yes to this question, a fast, one record per line listing to the screen will begin. Only the fields specified for QUICK LIST in THE SETUP PROGRAM will be shown with each record number as illustrated in Figure 3.4, in which the name and account number fields of a record are listed. The list is continuous unless halted by pressing any key. The list can be resumed by pressing RETURN or aborted by pressing ESC. The QUICK LIST can be used to scan rapidly through a data file, looking only at 1 or 2 relevant fields.

```
PRESS ANY KEY TO HALT LISTING

1.  ACME CHEMICAL CO.          A37721-38
2.  JOHN ALEXANDER & SONS      A37981-21
3.  MINUTE LAUNDRY             C91238-07
4.  JASON'S PIZZERIA           B10765-26
5.  BEN JOHNSON & CO.          R29076-51
6.  CHARLES ROBARDS, CPA       B92180-62
7.  THE BIKE SHOPPE            C21752-87
```

Figure 3.4
QUICK LIST FORMAT

If QUICK LIST is not selected, a regular listing will occur. This is the default listing and will be selected if any key besides 'Y' is pressed when you are asked 'QUICK LIST (Y/N)?'. The regular listing displays one record at a time using the format illustrated in Figure 3.3. All of the options available after record entry are available here (see Section 3.4).

SECTION 3.6 – SEARCH
(Menu item 4)

The SEARCH option allows you to specify a group of records on which a number of operations can be performed. One or more data files can be searched for records that conform to the specifications you provide. Before a search is initiated, you must specify what should be done with the records found and, obviously, what is to be searched for.

What should be done with the records found –

When the SEARCH option is first selected, the list in Figure 3.5 is displayed, allowing you to specify what should be done with the records found by the search. Any of these operations can be performed jointly on the records found. To select any or all of the options, simply press the number adjacent to each and press RETURN when through. If none of the options are selected, the search will proceed and produce a simple count of the number of records meeting the search specifications. This count is always provided at the end of search regardless of which operations are selected. The results of each of these choices will now be described.

1. DISPLAY
2. PRINT
3. TOTAL
4. EDIT
5. DELETE
6. SAVE TO NEW FILE
7. MULTIPLE FILES

Figure 3.5
SEARCH RESULTS MENU

1. DISPLAY – If the display option is selected, each record found will be displayed on the screen using the default format described in Section 3.5. All of the options available during record display (print, delete, edit, etc.) can now be performed at your option. An application in which this operation would be desirable might be:

EXAMPLE – Search for Johnson (you can't remember the first name) and delete, print, or edit the record. You would want to see each Johnson until the correct one was displayed, perform the desired operation, and then press ESC to end the search.

2. PRINT – If the print option is selected, each record found will be printed using the default print format described in Section 3.8. The print-out may be halted by pressing ESC (for example, to adjust the paper), then continued by pressing RETURN or aborted by pressing ESC again.

EXAMPLE – Print a list of all overdue accounts receivable.

EXAMPLE – Print a summary of all sales made by salesman Thompson from January through March.

3. TOTAL – If the total option is selected, all numeric and monetary fields of the records found in all searched files will be totalled. At the end of the search, this total will be displayed. If the print option is selected, the total will be printed, not displayed.

EXAMPLE – What is our total outstanding receivables due from Brown and Associates?

EXAMPLE – What is the dollar value of all inventory items received before December 31?

4. EDIT – The edit option allows you to selectively modify the contents of all those records found by the search. Any field may be edited, regardless of the field being searched. The edit may consist of direct replacement, or the addition or multiplication of a number to the contents of a numeric or monetary field.

EXAMPLE – Correct the spelling of "Cincinnati" which you realize you have misspelled consistently.

EXAMPLE – Add a $5.00 penalty to the amount due field of all customers whose accounts are more than 30 days past due.

EXAMPLE – Increase the sales price of all *Synergistic Software* products by 10% (multiply by 1.1).

5. **DELETE** – The delete option removes all records found from the data files being searched. This option should be used *very* carefully as the records *cannot* be recovered once the file(s) being searched have been resaved to disk. In particular, as described below under multiple files, a search of more than one file in a single operation will cause files that have been modified to automatically be resaved to disk before the next file is loaded to be searched. The deleted records in these files are not recoverable unless back-up files have been used. When using the delete option, therefore, you are advised to either also display the records for review prior to deletion or to print the records found so that a list of deleted records is available in case it is needed.

EXAMPLE – Remove all accounts that are more than 90 days overdue from the accounts receivable listing. Print these records and save them to a new file for write-off.

6. **SAVE TO NEW FILE** – If the save to a new file option is selected, all records found are individually saved to disk to the text file called TEMP. These records must then be loaded into the database for separate processing or appended to existing files using the DISK ACCESS procedures described in Section 3.9. Note that repeated searches can be made, saving records to TEMP until such time as TEMP is loaded into the database. At that time, it can be deleted, and a new TEMP file begun.

EXAMPLE – As an invoice is paid, search the accounts receivable file, print the record, delete it, and save it to disk for later addition to the sales journal file.

EXAMPLE – Segment a data file by in-state versus out-of-state customers, clients, or suppliers. Search for your state in the STATE field, and save all records found to a new file. Now you can do special mailings to just the in-state individuals, while maintaining the original file for mailings to everyone.

7. **MULTIPLE FILES** – If the multiple files option is selected, you can specify that all files on one or more disks (slot, drive, volume) are to be searched. Up to 4 floppy disks or 10 volumes on a hard disk drive can be searched. Since a single slot, drive, volume can store 143,000 bytes, it can be seen that 572,000 bytes of data can be searched on floppy disks with a single search command.

Note that multiple file searches are performed by the program's loading each successive file into memory and searching it on-line. If a file is modified during the search by either editing or deleting records, the file will automatically be resaved to disk before the next file is loaded. Multiple file edits or deletions should, therefore, be performed with care to avoid any unintentional loss of data. Also note that all the data files on the indicated drives or volumes will be included in the search.

After you have chosen your search results options and pressed RETURN, you may in some cases be asked for additional data. The edit option requires specification of the field to be edited, the nature of the edit (replacement, add data, or multiply data), and the data that will be used for the replacement, addition, or multiplication. The multiple files option also requires detailing further options, specifically which drives or volumes are to be included in the search. In specifying slots and drives for floppy disk systems, type 1, 2, 3, or 4. 1 will select slot 6, drive 1; 2 equals slot 6, drive 2; 3 is slot 5, drive 1; and 4 is slot 5, drive 2.

What is to be searched for –

Now that you have specified exactly what is to be done with the records found, you must next identify the conditions that will indicate which records are to be found. Up to 10 fields may be included in the specification of search conditions, though 1, 2, or 3 are generally more than sufficient. Only those records meeting *all* of the specified search requirements will be "found."

The next question you must answer is 'HOW MANY FIELDS SHOULD BE SEARCHED (1-10)?' You will then be asked to specify each field by number and to specify which of three search modes is to be used for each: 1) Match, 2) Range, or 3) Exclusion.

1. MATCH – If the match mode is selected, you must supply a search 'key'. This key can be a name, a keyword, a phrase, or the entire contents of a given field. A search key can be any number of characters long, up to the length of the field being searched. All records that contain the indicated characters anywhere within the indicated field will be found. In fact, if the specified sequence of characters appears twice, the record will be found twice.

EXAMPLE – If the name field is to be searched, and the search key is to be 'MARK', the following results would be obtained:

NAME	OTHER FIELDS	FOUND BY SEARCH?
John Smith	100 S. Main . . .	No
Mark Johnson	. . .	Yes
Mar Ling	. . .	No
Andy Markles	. . .	Yes
Denmark Marketing	. . .	Yes (twice)

Note that the space character is a 'wild card' character which will match anything. If only part of a search key is known, spaces can be used for the unknown characters.

EXAMPLE – You wish to find a record containing the name JOHN HAMBERSON. Or was it JOAN HAMBORSON or JOANNA HAMMERSON? Enter a search key of HAM__RSON, and you will find it.

2. RANGE – The range mode allows you to specify a minimum and a maximum value for the contents of the specified numeric or monetary field.

All records will be found whose values are greater than or equal to the minimum and less than or equal to the maximum value.

EXAMPLE – Print a list of all invoices dated December 1, 1980 to January 31, 1981. This can be done if the dates are in true numeric order, i.e. year month day with no non-numeric characters. The formats 801202 for December 1, 1980 and 810123 for January 23, 1981 will work properly.

EXAMPLE – Print a list of all houses in Seattle currently priced less than or equal to $60,000 (use minimum = 0, maximum = 60,000).

EXAMPLE – Print a list of employees earning between $20,000 and $30,000 per year inclusively.

3. EXCLUSION – The exclusion mode is the exact opposite of the match mode. Only those records that do *not* contain an occurrence of the search key will be found.

EXAMPLE – In the list above, John Smith and Mar Ling would be found if exclusion was specified and the key was 'MARK'.

EXAMPLE – A master data file recording sales has an amount due field. This field contains the word 'PAID' if the invoice has been paid in full. An exclusion search with 'PAID' as the key would find all records not yet paid in full, i.e. a receivables list.

Immediately after a search mode and range or key have been specified for each search field, the search will begin. If only a single match was specified, each file will be searched in one or two seconds. The more search modes specified, the longer the search will take.

SECTION 3.7 – SORT
(Menu item 5)

The SORT option is provided to enable you to rearrange your data files in alphanumeric order. A sort may be performed on *any* field of the record or on combinations of 2 or 3 fields. A sort may be performed on just the on-line data file or on a number of data files. The only limitation on the latter option is that all of the records being sorted must be able to be contained on a single disk drive (or volume).

When the SORT option is selected, you are asked whether the sort should be performed on only the on-line file or on multiple files. These two options will be described separately below.

For both types of sorts, attention should be paid to the way in which records are sorted. For example, for alphabetic characters (A-Z), A is lower than B, B is lower than C, etc. Care should be taken when sorting by numeric fields; numbers that have been right justified will sort properly. For numbers that have been left justified, however, the first numeral of each number will fall in the left most column (the first column seen by the sort). This will cause 10 to be lower than 9, as 9 is compared to the 1 of 10. The computer recognizes the space character as having a lower value than any of the printed

characters. To make numbers sort properly, therefore, they must be right justified. The order of character precedence is: space, special characters (#, S, %, etc.), numbers, upper case characters, and lower case characters. Examples of sorted lists are shown in Figures 3.6.

LEFT-JUSTIFIED NUMBERS		RIGHT-JUSTIFIED NUMBERS	
RANDOM	SORTED	RANDOM	SORTED
‹11	10	11	9
that	100	that	10
THIS	11	THIS	11
9	9	9	100
10	EACH	10	EACH
100	THIS	100	THIS
EACH	that	EACH	that

Figure 3.6
SORTED LIST EXAMPLES

ON-LINE FILE SORT

If you elect to sort only the on-line file, the normal case, you are presented with three sort modes: sort on one field, two fields, or three fields. The one field sort provides a simple alphanumeric sort on any field. The sort field is selected as in the LIST/MODIFY option described in Section 3.5.

Multiple field sorts will sort first on the first field selected, then sort that field by the subsequent fields. You may, for example, sort your list by state or zip code, then by last name (maintaining zip code order), then by first name. The result would be as illustrated in Table 3.1.

FIRST SORT FIELD = STATE
SECOND SORT FIELD = LAST NAME
THIRD SORT FIELD = FIRST NAME

STATE	LAST NAME	FIRST NAME
ALASKA	ANDERSON	JOHN
ALASKA	POWELL	BILL
ARKANSAS	ANDERSON	FRED
NEW YORK	ANDERSON	ALICE
NEW YORK	CARLSON	JOHN
NEW YORK	CARLSON	MARK
NEW YORK	JONES	ALICE
NEW YORK	THOMPSON	FRED
TEXAS	YOUNG	JILL
WYOMING	ANDERSON	JIM

TABLE 3.1
THREE FIELD SORT EXAMPLE

Sorting the records reassigns all record numbers. After a sort has been completed, the records may be viewed (LIST option), printed (PRINT option), or saved to disk (DISK ACCESS option).

The sort routines are written in machine language and operate very quickly. The time required for a sort varies with the number of records on-line. A typical file of 100 records should sort in less than 60 seconds (considerably less in most cases). Larger files of 500 records or more may require 5 minutes or more.

MULTIPLE FILE SORT/MERGE

The multiple file sort operation is referred to as a SORT/MERGE because a number of separate files are sorted, then combined or merged into a contiguous set of ordered records. The results are still limited to our normal file size, but the records will be in correct alphabetic order through the files. The multiple file SORT/MERGE is described in detail in Section 6.

EXAMPLE – Assume you start with a set of data files that are ordered by invoice number such that file one contains numbers 00000 to 01000, file 2 contains 01001 to 02000, etc. These files can be sorted by customer last name, resulting in the first file containing names A through G, the second file containing H through N, etc.

SECTION 3.8 – OUTPUT
(Menu item 6)

Data output refers to any method of printing or plotting your data. When OUTPUT is selected, you are given the options shown in Figure 3.7. Option 1 is the normal format that will be discussed in detail in this section. Using the REPORT GENERATOR for output, option 2, allows for a wide variety of other forms of printed output, such as form letters, contracts, etc. The REPORT GENERATOR will be discussed in detail in Section 4. Using the ANALYZER/PLOTTER for output, option 3, allows statistical analyses and graphing of numeric and monetary data. It will be discussed in detail in Section 5. A wide variety of labels such as mailing labels, price tags, inventory bin labels, diskette labels, etc., can be produced with the LABELS program, option 4, as described in Section 8.

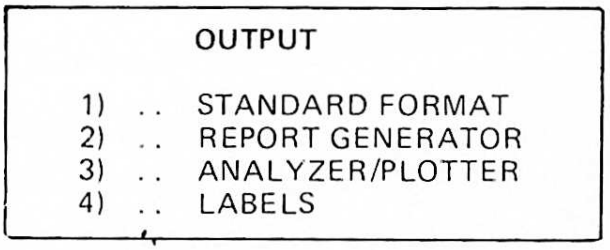

Figure 3.7
OUTPUT MENU

The STANDARD FORMAT option can be used to produce reports similar to the one in Figure 3.8. You will have several alternatives for printing. These selections are illustrated in Figure 3.9. Selecting number one, STARTING RECORD #, will allow you to enter the record number with which you wish

to start printing, and return you to the sub-menu shown in Figure 3.9. Choosing number 2, will ask for your starting page number. Enter the new page number and press the RETURN key. Number three, SUBTOTALS, will specify that subtotalling should occur. After leaving the menu in Figure 3.9, you will be asked 'SUBTOTAL WHEN WHICH FIELD CHANGES?'. and shown the list of your fields. Select the field by which you would like subtotals to occur (refer to the sample printout in Figure 3.8). Note that you must first sort by the field which is to be subtotaled. By selecting number four, MULTIPLE FILES, you will be able to print all the files on a disk without loading and printing each one separately. Again, after leaving the menu (by pressing RETURN to signify acceptance of the options) you will be asked 'WHICH DRIVES (1-4)?' are to be printed. As with the SEARCH MULTIPLE FILES option, specifying disk 1 selects slot 6, drive 1; 2 equals slot 6, drive 2; 3 is slot 5 drive 1; and 4 is slot 5, drive 2. For any printout option for which a selection is not made, default values will be used. The defaults are: record #1, next page number, no subtotals, and only the on-line file.

After entering any of the information you need, press the RETURN key, and printing will start. To stop the printing at any time, press the ESC key. Next pressing the RETURN key will cause the printing to continue where it left off, while pressing the ESC key again will return you to the MAIN MENU.

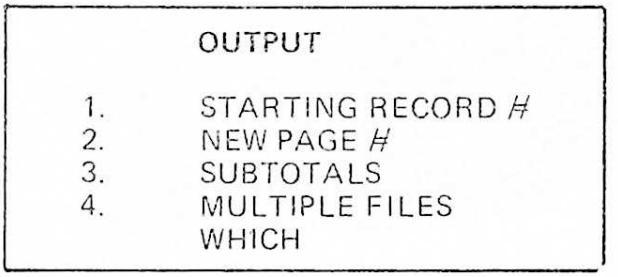

Figure 3.9
PRINTOUT OPTIONS

As each page of your printout is completed, the program will either stop printing or continue printing the next page, depending on whether you specified single sheet or continuous form paper in the SETUP PROGRAM. With single sheet paper, you will be instructed to insert a new sheet and press RETURN to continue printing. With continuous forms, the program will simply advance to the top of the next page without stopping. In both cases, page numbers and headers are printed at the top of each page.

After all the records specified have been printed, a grand total for each numeric and monetary field will be printed.

REGION	DATE	CUSTOMER	ACCT #	AMT PURCH	AMT PAID	AMT DUE
EA	810321	EASTERN COOP	E37692	$ 487.34	$ 250.00	$ 237.34
EA	810330	NEW ENGLAND OFFICE	N34256	$1000.00	$1050.00	$ -50.00
EA	810228	SEABOARD HARDWARE	S34671	$ 483.91	$ 0.00	$ 483.91
				$1971.25	$1300.00	$ 671.25
NE	810301	ACME AUTO SALES	A32135	$ 250.00	$ 39.95	$ 210.05
NE	810227	ACME INDUSTRIAL, INC	A34532	$ 498.00	$ 498.00	$ 0.00
NE	801209	NEW ENGLAND HARDWARE	N16437	$4237.56	$4237.56	$ 0.00
				$4985.56	$4775.51	$ 210.05
NO	801031	MIDWEST AUTO SALES	M37591	$ 300.00	$ 26.35	$ 273.65
NO	810125	MIDWEST AUTO SALES	M34591	$ 351.25	$ 351.25	$ 0.00
NO	810301	MIDWEST AUTO SALES	M34591	$ 401.99	$ 401.99	$ 0.00
NO	810103	NORTHERN HARDWARE	N15302	$9630.25	$9630.25	$ 0.00
NO	801119	NORTHERN TRUCK LINES	N34569	$ 350.55	$ 100.00	$ 250.55
				$11034.0	$10509.8	$ 524.20
NW	801201	ACME OFFICE SUPPLIES	A22345	$ 300.00	$ 300.00	$ 0.00
NW	801029	EVERGREEN RESTAURANT	E13248	$ 398.50	$ 398.50	$ 0.00
NW	810222	EVERGREEN YACHTS	E34625	$2348.91	$2348.91	$ 0.00
				$3047.41	$3047.41	$ 0.00
SE	801124	BROWN STREET REPAIR	B34563	$ 199.03	$ 199.03	$ 0.00
SE	810131	BROWN STREET REPAIR	B34563	$ 231.34	$ 231.34	$ 0.00
SE	810223	BROWN STREET REPAIR	B34563	$ 235.55	$ 235.55	$ 0.00
SE	801022	SOUTHEAST LIGHTING	S34567	$1983.05	$ 983.05	$1000.00
SE	801001	SOUTHERN GLASS CO.	S13233	$ 398.50	$ 398.00	$ .50
				$3047.47	$2046.97	$1000.50
SO	810105	SOUTHERN GLASS CO.	S18600	$ 395.45	$ 395.45	$ 0.00
				$ 395.45	$ 395.45	$ 0.00
SW	801107	ARIZONA TRUCK LINES	A87321	$ 333.56	$ 333.56	$ 0.00
SW	810325	SOUTHWEST AUTO SALES	S32567	$ 33.00	$ 31.50	$ 1.50
				$ 366.56	$ 365.06	$ 1.50
WE	801102	CALIFORNIA DRY GOODS	C32148	$ 458.90	$ 458.90	$ 0.00
WE	810308	CALIFORNIA DRY GOODS	C32148	$ 300.00	$ 0.00	$ 300.00
WE	810303	WEST COAST CAFE	W13211	$ 49.50	$ 100.50	$ -51.00
				$ 808.40	$ 559.40	$ 249.00
				$25656.1	$22999.6	$2656.50

NOTE: In the grand totals of AMT PURCH and AMT PAID, the rightmost digit is missing. Those fields were defined to have seven characters. If more than seven characters are required, the least significant digits are omitted.

Figure 3.8
SAMPLE PRINTOUT SUBTOTALLED BY REGION

SECTION 3.9 – DISK ACCESS
(Menu item 7)

The DISK ACCESS function allows you to send data to and from the disk. This function will allow you to save a data file, recall a previously stored data file, or append a data file from disk to the current file in memory. These will be explained in detail below. Remember that at any time, pressing the ESC key will return you to the MAIN MENU.

After pressing '7' you will see the default slot, drive, and volume settings for the disk drive to be accessed (see Figure 3.10). You will be able to change these at this time as desired by entering the number corresponding to the parameter you wish changed and entering the new setting. Should these settings be correct or you have changed them to your liking, press the RETURN key to continue.

When you have pressed the RETURN key to continue, you will see the Disk Access Menu (see Figure 3.11). Pressing '1', LOAD, will give you a catalog listing of the first nine (9) data files on the current disk. Should you have more than nine data files on the disk, pressing the RETURN key will display the next nine files. Typing the RETURN key with less than nine files on the disk will cause the disk catalog to appear again. You will be prompted to type the character next to the file you want loaded. Press the character associated with the file you want, and it will be loaded into memory. Any non-valid key (one that does not show on the screen adjacent to a file name) will be ignored.

Selecting item two, SAVE, causes much the same reaction as the LOAD option. The catalog listing of the first nine data files on the DISK will be displayed and you will be prompted to enter a file name to save. Pressing the RETURN key at this point will display the next nine files. You would at this point type in the name under which you wish to save the data file in memory, or press the ESC key to return to the MAIN MENU. If the on-line file is already named, pressing the colon (:) key will save the file with that name.

NOTE: It is possible to save data in place of another data file by using the same name as one already on the disk. Sometimes this is desirable, such as after updating a file (adding new records, editing misspelled names, or deleting unwanted records). You don't want the old file because it contained faulty or obsolete records, so you load in the old file, make your corrections and/or additions (deletions) and save it back to the disk with the same file name as it originally had, thus destroying the old file and saving the updated one in its place. However, this is not always desirable. The old file that had a new file saved over it, is NOT RETRIEVABLE AT ALL. Care should be taken, therefore, to avoid accidentally saving a file with the same name as one already on the disk unless this is specifically desired. You should also have back-up data disks of any files that you wish to protect. A backup can

be made and updated in seconds. Each time you save a file, simply save it twice to different disks.

Item number three, APPEND, will allow you to combine a file on the disk with the current on-line data. The records from the disk will be entered after the on-line records. Selecting APPEND causes the data files on the current disk to be displayed. Enter the character that represents the file you want, and the computer will append that file to the one currently in memory. If the file on disk is too long to be totally appended to the current file, then as many records as possible will be added to the file in memory, and you will be shown how many records were appended out of the number possible.

Option number four, DELETE, will delete a file from your disk. Because we use the normal DOS DELETE command (see your DOS manual) it is possible to recover a file once it has been deleted only before another file of any type has been saved to the disk. The recovery of deleted files is however beyond the scope of this software. There are utility software packages on the market like our DIRECTORY MANAGER to undelete files from a disk. See your dealer for this program should you need it.

Selecting number five, CATALOG, from the DISK ACCESS Menu will simply give you a full catalog listing of the current disk (all files will be displayed). You will then be asked to press the RETURN key and upon doing so you will be brought back to the beginning of the DISK ACCESS Menu (see Figure 3.11).

By selecting number six, CONVERT TEXT DATA, you can convert the data obtained by a SEARCH & SAVE (see Section 3.6). During a SEARCH & SAVE, the data found will be saved to a text file named TEMP on the disk. Enter this as the file name if you have done a SEARCH & SAVE, and the saved records will be appended to the on-line file. The text file TEMP can (and probably should) be deleted at this time so that subsequent SEARCH & SAVEs are saved to a fresh file.

```
DISK ACCESS

1 . . .   SLOT = 6
2 . . .   DRIVE=1
3 . . .   VOLUME=0
CHANGE ANY
(DEFAULT=NO CHANGE)?
```

Figure 3.10
SLOT/DRIVE/VOLUME SELECT

```
DISK ACCESS

1) . .   LOAD
2) . .   SAVE
3) . .   APPEND
4) . .   DELETE
5) . .   CATALOG
6 . . .  CONVERT TEXT DATA
WHICH?
```

Figure 3.11
DISK ACCESS MENU

SECTION 3.10 – SPECIAL FUNCTIONS (Menu item 8)

Item eight on the MAIN MENU is SPECIAL FUNCTIONS. After pressing '8', you will see the SPECIAL FUNCTIONS sub-menu illustrated in Figure 3.12. Selecting number one, DISPLAY TOTALS, will calculate and display to the screen, the totals of each numeric and monetary field of the on-line data file.

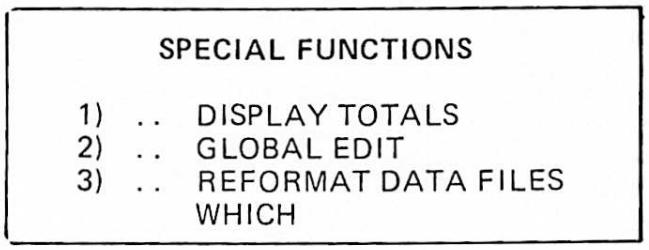

Figure.3.12
SPECIAL FUNCTIONS MENU

The second option, GLOBAL EDIT, allows you to alter some field of all on-line records. You will first specify which field is to be altered, then the nature of the alteration. You may:

1) replace the contents of the specified field with some other data,
2) add some value to the current contents of the field, or
3) multiply the contents of the specified field by some constant.

The SEARCH & EDIT option (see Section 3.6, number 4) operates similarly and lists several examples. After the nature of the alteration and the data to be used (to replace or add or multiply), have been specified, all records in the on-line data file will be altered as specified. If you are at all uncertain about the GLOBAL EDIT feature, be sure to save your data file before experimenting with it. Any data that is changed by the GLOBAL EDIT *cannot* be recovered except by reloading the original data from disk.

Selecting number three, REFORMAT DATA FILES, will execute the RECORD REFORMATTER program located on your application disk. This program allows you to rearrange the data in your files into some new format. You can add characters to one field if it was too short, add fields to the record if you need more data, or create some totally new format using data from only one or two fields of your current files. See Section 7 of this manual for the operating instructions on the RECORD REFORMATTER.

SECTION 3.11 – TERMINATE
(Menu item 9)

The TERMINATE function, item nine of the MAIN MENU, will cause the program to stop. If you have data in memory that has been modified, you will be asked if you wish to save it before ending. Otherwise, you will simply be asked 'END (Y/N)?'. Typing a 'Y' for Yes in response will end the program and leave you in Applesoft BASIC. Typing 'Y' will also give the computer back control of the RESET key so it will work normally. Entering any other key in response to the question will assume you don't really want to quit and will return you to the MAIN MENU. If you change your mind after terminating, type 'GOTO 370' to reenter the program with all data intact.

SECTION 3.12 – DEMO DATA FILE

If you wish to practice some of the features described in this section before setting up your own application disk and data files, you can use the DEMO DATA file provided on the disk. After booting the master disk, the Initial Menu illustrated in Figure 1.2 will appear. If your printer specifications are the same as are listed in Table 2.1, you can go straight to the demonstration. Otherwise, you must edit the setup to match your hardware. Run the SETUP PROGRAM, select option 2, and change just those entries that apply to your printer. Then, when you return to the Initial Menu, you can run the demonstration.

Press '4' of the Initial Menu to run the demonstration program. When the MAIN MENU appears, you will see that this application is called SALES JOURNAL. It is setup to work with records which will contain the following fields. Note that here fields 1-8 are alphanumeric, while 9-11 are monetary.

1. REGION (of the country in which the sale was made)
2. STORE (which store of a chain)
3. SALESMAN (who was responsible for the sale)
4. COMMENT (whatever)
5. DATE (of purchase)
6. CUSTOMER (who bought it)
7. INVOICE # (of the purchase)
8. ACCOUNT # (of the customer)
9. AMOUNT OF PURCHASE (for sales records)
10. AMOUNT PAID (for cash receipts records)
11. AMOUNT DUE (for accounts receivable. Field 11 equals Field 9 minus Field 10).

To work with this demonstration program, you will first need data. Load the DEMO DATA file by pressing '7' (selecting DISK ACCESS from the MAIN MENU), and going through a LOAD sequence as described in Section 3.9. If a successful LOAD is accomplished, the MAIN MENU will now indicate '25 OF 200 RECORDS' and 'FILE=DEMO DATA'. If you don't see this, try again.

With the DEMO DATA on-line, you can experiment with SEARCH, LIST, SORT, or PRINT of the data until you are bored enough with it to want to try your own data. Selecting printouts that subtotal by fields 1, 2, or 3 will give you total sales in each region, total sales by store, or total sales by each salesman respectively. Figure 3.8 illustrates sub-totals by region. Searching field 11 for anything that is not 0.00 (exclusion search with search key=0.00) will print an accounts receivable listing. A printout with subtotals by field 6 will give you individual billing records on each customer (who owes what). Many other reports can be generated, but I'll leave these for you to come up with.

SECTION FOUR

THE REPORT GENERATOR

SECTION 4
THE REPORT GENERATOR
SECTION 4.1 – OVERVIEW

The REPORT GENERATOR is a sophisticated text editing program, capable of creating reports, form letters, financial statements, memos, and general text to be printed on paper. There are two modes of operation to the REPORT GENERATOR; the COMMAND MODE, to provide access to the primary functions of the program, and the EDIT MODE, to provide access to the actual lines of text. The two modes of operation will be explained in detail under their appropriate section headings.

The REPORT GENERATOR is a "stand alone" text processor. "Stand alone" meaning you don't have to extract data from the database in order to use this program. For example, if you want to send a note to someone in another department of your company using the REPORT GENERATOR, you can keep, on disk, a record of the event and the text of the note. Or if you want to write a letter to a friend, relative, or business associate, rather than tear it up and rewrite it because of excessive misspelling or because your words didn't convey the right meaning, write it on the REPORT GENERATOR and edit as necessary. Letting your computer be your filing cabinet will allow you to keep a permanent copy of your correspondence that you can edit and print at any time.

This program was designed, however, to be used in conjunction with the rest of THE DATA REPORTER package. It will allow data from the database to be easily inserted into your text. Any report printed by the REPORT GENERATOR could include text and data (such as names, addresses, account numbers, and balances) from the database.

NOTE 1: The APPLE II Computer does not show lower case characters on the screen without a special "chip" that contains the lower case character set. See the technical section of this document for manufacturers of this chip, or contact your local dealer. Please note that adding this chip may void the warranty on your computer.

NOTE 2: After a letter or document has been entered/edited to your complete satisfaction, be sure to save it to disk for future use *before* exiting the program or turning off your computer.

ARGUMENTS

The first statement that requires input, when you select this program from THE DATA REPORTER, or "run" it independently, is:

ENTER NUMBER OF ARGUMENTS

What are arguments? This question is probably in your mind right now. Arguments are parts of your document that would remain constant through a series of printings, but might change from day to day. Have I confused you yet? An example of an argument might be a date. For example, you could send a form letter to everyone on your mailing list, telling them of your fantastic sale on widgets starting at some future date. Another example involves the above mentioned form letter using an argument in place of the specifi-

cation widgets. You now have a general purpose letter to announce sales of any specific item (widgets, etc.) on predetermined dates that will be sent to all of the people on your mailing list. The names, addresses, and salutations of everyone on your list can also be inserted, from your data files, into your letter, but that will be discussed in detail later in the section under INSERT FIELD, along with method of inserting arguments into your document.

The maximum number of arguments that you may select is arbitrarily set at 10; should this number need to be increased, the special technical section at the end of this document will have all the information needed to change the program accordingly. To enter the number of arguments you would like to have in the document, simply enter the number and press the RETURN key. Entering a 0, any non-numeric key (or keys), or pressing the RETURN key, tells the computer you are not using arguments. Should you decide to use arguments, the computer will then ask you for the length of each of your arguments. The length of the argument is only used to show you, at the time of writing your document, how many characters will be used so you can format your page with the proper number of columns on that line.

Following arguments you will be asked:

WHAT IS YOUR MAXIMUM LINE LENGTH?

You are limited to 132 columns per line. Should you need more than 132 columns, you should see the technical section at the end of this document.

By pressing the RETURN key in response to the question on line length, you will set the default (65) characters per line. Any value less than 133 will give you that many columns for output. A standard sheet of 8½" by 11" paper has 80 printable columns in standard type font. 65 characters per line will give you 15 columns to split between the right and left margin of the page; for more margin area use a smaller number for your line length. Note that when a line length of greater than 36 characters is selected, the video display will not look the same as the printout.

After you answer the question on line length you will be asked for the number of lines to have in your text. Pressing the RETURN key in response will give the default 100 lines. Should you need more or less lines, just type the number desired and press the RETURN key. Due to the way Applesoft (the programming language in which this program was written) handles strings of characters, the time factor involved in entering text will be increased as the number of lines you choose increases. For maximum speed with minimal time loss we recommend 100 or fewer lines.

THE LiST OF COMMANDS

After you have selected the number and length of arguments and your line and text lengths, the list of commands will appear on the screen as illustrated in Figure 4.1. As indicated, all of these commands are prefixed by "CTRL"; this is to direct you to hold down the marked CTRL, located above the left handed shift key, while pressing the key shown for that command.

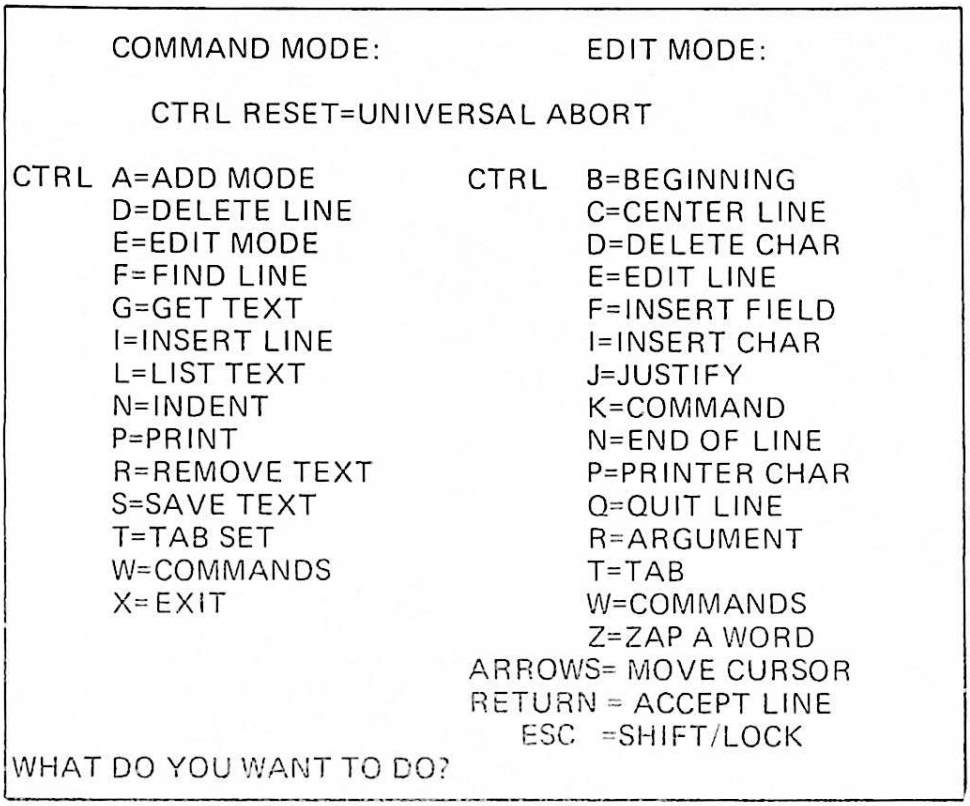

Figure 4.1
REPORT GENERATOR LIST OF COMMANDS

RESET KEY (CTRL-RESET)

At any time while using this program, pressing CTRL RESET will return you to the COMMAND MODE. Note that if you have accidentally selected an undesired command, you may abort by this method. If you press CTRL RESET while in the ADD MODE or the EDIT MODE the line of text that you are currently typing will be lost and will have to be retyped.

SECTION 4.2 – COMMAND MODE

We will first discuss the left side of the list of commands or the COMMAND MODE commands. These commands are valid whenever the prompt 'WHAT DO YOU WANT TO DO?' is displayed. The command keys are all mnemonics of their intended function.

ADD MODE (CTRL – A)

CTRL A, ADD MODE is used to enter lines of text into the editor. The REPORT GENERATOR is a line oriented editor in which each line of text is prefixed by a line number. Thus, when you enter the ADD MODE the screen will clear, the appropriate next line number will appear, and the length of your line will be shown by placing apostrophes (') across the screen as many times as your line length indicates. Entering the ADD MODE will automatically put you in the EDIT MODE (see Section 4.3).

DELETE LINE (CTRL – D)

CTRL D is used to delete an entire line(s) of previously entered text. Choosing the DELETE LINE function will ask: "DELETE ONE LINE ONLY (Y/N)?". Pressing Y for Yes will ask for the line number you wish to delete; type the line number you want and press the RETURN key. Pressing N for No in response to the question will assume you wish to delete a block of lines. You will be asked for a starting line number and an ending line number; in both cases enter the appropriate numbers and press the RETURN key. In all instances the proper line (lines) will be deleted from your text. If you decide not to delete any lines, pressing CTRL – RESET will return you to the COMMAND MODE. You can delete all lines of text and start entering from scratch if you wish. Note that deleting only part of your text will change all subsequent line numbers.

EDIT MODE (CTRL – E)

CTRL E places you into EDIT MODE where text that will become your document is entered (see Section 4.3).

FIND LINE (CTRL – F)

CTRL F acts as a search to locate, by line number, specified characters within your text. After selecting FIND LINE, the program will ask for the line number with which you would like to start your search. Pressing the RETURN key starts the search at line one. You are then asked "FIND WHAT?", which is any group of characters you would like to find in your text. The program will then go merrily along searching all of the lines for the exact occurrence of the string of characters for which you asked. When a line is found that contains the search string, it will be displayed, and you will be placed in the EDIT MODE. After editing the line to your satisfaction, or if the line shown was not the line for which you were looking, press the RETURN key, and you will be asked "CONTINUE OR ABORT (C/A)?" Pressing the C key will find the next occurrence of the search string and allow you to edit it. Pressing the A to abort will return you to the COMMAND MODE.

GET TEXT (CTRL – G)

Choosing the GET TEXT function enables you to retrieve text that was previously saved to disk. The program will ask "APPEND TO CURRENT FILE OR REPLACE (A OR R)?". Selecting A will retain the text you have currently in memory and add the new text to the end of it. Selecting R will replace the text you currently have in memory with the text on the disk. Special caution should be made when appending text of different line lengths. Appending a file with a line length of 30, for example, to your current text with a line length of 80 will cause no problems at all, but reversing the situation, with your current length less than that in the appending file might cause undesirable results at the time of printout.

The program will then ask "INPUT FILE NAME (RETURN=CATALOG, 0 = NONE) –>". Pressing the RETURN key will show you only the names of text files on the disk that were created by this

program. Typing a 0 (zero, not the letter O) and pressing the RETURN key will return you to the COMMAND MODE. To get the text from the disk into the computer, simply type the number adjacent to the desired text file, and it will be loaded.

You cannot append text that would result in more line numbers than were originally specified. If you need to append the lines, save the text you have on-line, rerun the REPORT GENERATOR (see CTRL–X for EXIT) specifying more line numbers, reload your text, and append the additional desired text. The append feature can be used to take standard paragraphs, clauses, and sections of a letter or document that have been previously saved and add them to new documents as desired.

INSERT LINE (CTRL – I)

CTRL –I is used to insert a new line of text between already entered lines. Selecting INSERT LINE will ask "INSERT BEFORE WHAT LINE?". Simply type the line number in front of which you would like your new line to appear and press the RETURN key. Entering a number greater than the number of lines you have typed, a line number less than 1, or a non-numeric character will produce a beep and return you to COMMAND MODE. INSERT LINE will automatically place you in the EDIT MODE. Note that inserting a line automatically changes the line numbers of all subsequent text.

LIST TEXT (CTRL – L)

LIST TEXT will list the text you have already typed to the screen. The computer will ask for the line number with which you would like the list to start. You should enter a number and press the RETURN key to start the list at that line, or simply press the RETURN key to list all of the text to the screen. Pressing the escape (ESC) key will halt the listing and the question "CONTINUE LISTING (Y/N)?" will appear on the screen. Typing the Y for Yes key will continue the listing, while pressing any other key will return you to the COMMAND MODE.

INDENT (CTRL – N)

The INDENT command will show you the current indentation, or left margin of your printout, and ask you for a new one. Typing the RETURN key at this point will assume no new indentation is desired and return you to the COMMAND MODE. Entering a new value and pressing the RETURN key will change the indentation. Care should be used in changing the indentation. Let's say your text is all typed in, you have a line length of 75 and now change the indentation to 20. Your text will be indented 20 spaces before printing the line. Assuming your paper is 80 characters wide, when the print head reaches the right edge of the page, your text could either be printed off the page, or be superimposed over the text up to the edge of the page.

PRINT (CTRL – P)

This is it, the PRINT command, all of your fruits of labor will be put to the test and actually put on paper. You will first be shown a printer sub menu, duplicated below:

SELECT ONE

1 . . PRINT SAMPLE
2 . . PRINT FORMATTED TEXT
3 . . LIST TO PRINTER
4 . . RETURN TO MENU

WHICH?

PRINT SAMPLE

Selecting #1 will print one copy of your text formatted for proper indentation, spacing, etc. This print option will not incorporate data from the database, or utilize any of the printer commands available (see the PRINTER CHAR section of the Section 4.3 for details on printer directives).

PRINT FORMATTED TEXT

Choosing #2. PRINT FORMATTED TEXT will print your text using all of the inserted fields, printer commands, arguments, and calculations of fields. If at any time during printing you wish to stop and return to COMMAND MODE, the RESET key will accomplish this for you.

LIST TO PRINTER

Pressing #3. LIST TO PRINTER will list your text with line numbers to the printer. This listing might be useful in correcting your document or for keeping a hard copy record of your text.

RETURN TO MENU

Selecting #4. RETURN TO MENU will not print anything; you will be returned to the COMMAND MODE.

Choosing number 1 or 2 above will cause the computer to show you the current slot # for the printer, data file to be used, number of lines that can be printed on your form, and top margin among other variables. To change any of the entries, press the corresponding number, enter the proper data, and press the RETURN key. To make no change simply press the RETURN key.

REMOVE TEXT (CTRL – R)

The REMOVE TEXT portion of the COMMAND MODE will allow you to delete those files from your disk that you no longer want. You will be asked for the name of the file to remove. Pressing the RETURN key at this time will display for you the text files you have on the disk that is currently in the drive, and ask you again for the

name of the file. Typing a 0 (zero) will return you to COMMAND MODE with no files deleted. CAUTION: Once you have removed a file from disk it is permanently gone and cannot be retrieved.

SAVE TEXT (CTRL – S)

Selecting SAVE TEXT works exactly as REMOVE TEXT, except you are saving your text to disk. Care should be used in selecting the name for your file; using a name that already exists on that disk will destroy that version you had there previously and store the one you are saving in its place.

You should be very certain that the final copy of your text is saved before leaving the REPORT GENERATOR. You should also periodically save the text as you are entering it to prevent accidental loss due to power fluctuations, earthquakes, etc.

TAB SET (CTRL – T)

CTRL – T allows you to set the tabs you will use while entering text. Selecting the TAB SET function will display the current tab settings. Nine tab settings are available for your use and are numbered on the screen. To change a tab setting, press the number corresponding to the tab you wish changed when asked "CHANGE WHICH?". Pressing the RETURN key will remember your current settings and return you to COMMAND MODE. A tab that is not set will show as "NONE" on the screen.

COMMAND MODE (CTRL – W)

Selecting COMMAND MODE will display the list of commands illustrated in Figure 4.1 and, of course, place you in the COMMAND MODE.

EXIT (CTRL – X)

The EXIT command will place the menu on the screen:

1) . . RETURN TO DATABASE

2) . . START OVER

3) . . QUIT

WHICH?

Pressing 1 in response to the question will ask you to place your application disk in drive 1 and press RETURN. This will then "RUN" your application disk. Pressing a 2 will start the REPORT GENERATOR from the beginning. In both options 1 and 2, your text currently in memory will be irretrievably lost. Selecting 3 from the menu will cause the program to end and you will be left in basic. The program can be reentered, if desired, by typing GOTO 370.

SECTION 4.3 – EDIT MODE

The EDIT MODE, or more exactly the EDIT MODE COMMANDS, are in effect whenever you are typing text that will become part of your document. The EDIT MODE commands are, like their COMMAND MODE counterparts, mnemonically driven. That is, the character used for the command needed can be remembered more easily than an arbitrary selection of characters. Remember when using a control character to hold down the CTRL key while pressing the character you want, then release both keys.

The EDIT MODE is the means of making corrections and changes to your text. You can delete characters and words, insert characters and words, and insert fields of data and arguments into your text. EDIT MODE is entered from COMMAND MODE by typing CTRL – A to add text or CTRL – E to edit some existing line of text.

BEGINNING (CTRL – B)

This command will take the cursor from anywhere on the line and place it at the beginning of the line.

CENTER LINE (CTRL – C)

The CENTER LINE command will instruct the computer to center the current line after you have typed it. The CTRL – C may be entered anywhere within the line. Note that a CTRL – C overrides the justify command.

DELETE CHAR (CTRL – D)

DELETE CHARACTER will delete from your current line the character under the cursor. The remainder of the line (to the right of the cursor) will be moved one space to the left. The character just to the right of the deleted character will become the character under the cursor. The portion of the line to the left of the cursor will not be affected.

EDIT LINE (CTRL – E)

Selecting EDIT LINE while in EDIT MODE will cause the current line you are typing or editing to be lost and you will be asked for the line number of the line to be edited. The indicated line will be displayed and all of the EDIT MODE commands listed in Figure 4.1 are operable.

INSERT FIELD (CTRL – F)

The INSERT FIELD command allows you to insert data from your data files into your text. When selected you will see, on the screen, a question mark and the letter F in inverse video (black on white). You then must press the key corresponding to the number of the field you want to appear in your document. The computer will respond by replacing the question mark with a small square (if you do not have a lower case chip in your computer the question mark will not be replaced), placing the field number after the F and adding commercial at signs (@) to fill the length of your field. For example, if field 1 with a length of 8 characters is selected, you will see ■F1-

@@@@@. As an example of the use of INSERT FIELD, assume your database application is a mailing list, and you are sending letters to everyone about your latest sale item. Field number 3 holds the customer's last names and field 4 holds their titles (i.e. Mr., Ms., Dr.). the rest of your document contains only text about the sale. Field 3 has a length of 12 and field 4 has a length of 4. You would type: Dear (space) CTRL – F 4 (space) CTRL – F 3 (semicolon.) Your salutation line on the video screen would read: Dear ■F4@ ■F3-@@@@@@@@@@;. Assuming field 3 contains Smith and field 4 contains Dr., when printed you would see Dear Dr. Smith:.

When your document is being printed, any occurrence of the INSERT FIELD command will cause data from only whatever record is currently selected to be printed. It should be noted that the GET n and GET NEXT commands (see CTRL – K) must be used to specify which record is selected for printing at any given time.

NOTE: The trailing at signs (@) show the maximum number of characters you assigned the database for the particular field in question. These space fillers are to show you, on the screen, the usage of your field. Remember, in formatting your page, that your actual field usage length may be less than that shown by the INSERT FIELD command. Should your data have fewer characters than indicated, extra spaces will not be added at time of printing. This effect would negate your justification of that line. If you would prefer the extra spaces to be printed, please turn to the technical section at the end of this document.

INSERT CHAR (CTRL – I)

The INSERT CHARACTER command allows text to be typed in the middle of the current line, moving the text to the right of the cursor one space to the right for each character typed. Using either of the arrow keys will turn off INSERT CHAR.

JUSTIFY (CTRL – J)

The JUSTIFY command causes the text to be right justified. Simply stated, this command will add spaces to the line being justified so that the last character of the line will end up at the last position on the line. The upper right hand corner of the screen will show if the justification is on or off. Justify on will justify the current line. Justify off will leave the line as typed. To show the difference, this document was written with the justification on. This paragraph was written with the justification off.

NOTE: If there are more than eight (8) spaces at the end of the line, it will not be justified, the assumption being that that line is the end of a paragraph. Also, should you edit a line that has been justified, we recommend first deleting the extra spaces placed in the line, then editing the line, and letting the program re-justify it. When fields of data, calculations, or arguments are embedded in a line of text, justification may not be correct (depending on the relative length of the data as compared to the maximum field length, etc.) In these cases, you probably should not use justification.

COMMAND (CTRL – K)

This command is considered by some to be the hardest of all to fully comprehend. It is also the controlling function in the system allowing the synergistic blending (where the whole is greater than the sum of its parts) of the data from THE DATA REPORTER and the text from the REPORT GENERATOR. An example is probably the best way to demonstrate its ability. On the master disk supplied you will find a text file called DEMO REPORT. Load it and look at the text. All of the commands were used in the sample. To print it with data from THE DATA REPORTER, get to the COMMAND MODE and press CTRL – P. Select 2 . . PRINT FORMATTED TEXT, enter the name of the data file as DEMO DATA, and press the RETURN key twice.

Each command in this section must start with a CTRL – K as the first character on a line and must be followed by one (1) space (except when defining a calculation, see below). Each command must be typed exactly as shown and followed by pressing the RETURN key. There must never be more than a single command on each line. Note that these commands are executed and not printed.

GET n (where n is the record number you wish)

This command will get the nth record in the file indicated prior to printing. If the record is not present in the file, each line of text following the GET n will be searched for the command EXIT (see below). Printing will then continue with the line following the EXIT command. If the record is present on disk, printing will continue with the line following the GET n command.

GET NEXT

The GET NEXT command will, as implied, get the next record, in order, from the disk. As with GET n, if the record is not found, printing will continue with the next occurrence of the EXIT command found in the text. If the record is found, printing will continue with the line following the GET NEXT command.

GOTO n (where n is a valid line number)

This command will cause printing to continue at line number n of your text. This command is most useful after the GET NEXT command (see above). An example would be a form letter as illustrated in Figure 4.2. This example would print an invitation on a separate page to everyone in the file specified.

```
1. ■C GET 1
2. DEAR ■F4 ■F3@@@@@@@@;
3.
4. You are invited to our big sale on July 1.
5. ■C GET NEXT
6. ■C PAGE
7. ■C GOTO 2
8. ■EXIT
```

Figure 4.2
ILLUSTRATION OF EMBEDDED COMMANDS

EXIT

Printing continues at the line following the EXIT command if no more records were found in the data file by the GET n or GET NEXT commands. If the program is looking for an EXIT command and none is found through the end of the document, then printing stops, the list of commands is shown, and you are placed in the COMMAND MODE.

PAGE

The PAGE command will simply advance the paper or form to the top of the next one.

DO n (where n is a number)

This command is similar to the GET NEXT command. It will process n occurrences of the text between the DO and the NEXT DO (see below) commands. The number n is decremented by one each time the text is printed and the loop continues until number n is zero (0). The examples in Section 4.4 illustrate a few uses of the DO command. Others might include printing 100 copies of a letter with no data embedded, printing a fancy heading on each page with 10 records below the heading, etc.

NEXT DO

This command works in conjunction with the DO n command and is responsible for printing the next occurrence of the text within the DO loop. When it has finished with the nth occurrence of the DO, printing continues with the line following the NEXT DO command.

WAIT

At this command printing stops and the computer asks you to press any key to continue printing. This command is very useful when using single sheet paper (letter head) or single sheet forms. Printing is continued at the line immediately following this command.

CALCULATIONS

CTRL – K also allows you to print the results of calculations using constants and data from one or more fields of your data files. Examples would be: 1) Field 3 times 1.1, to increase that value by 10%; 2) Field 5 divided by Field 6 times 100, to find a percentage. To use the command, you must first define a calculation; type CTRL – K as the first character in the line. Then type a number between 1 and 9 inclusive. DO NOT type a space after the CTRL – K, as that would be interpreted as one of the commands listed above. You may define a maximum of 9 calculations. You would then type the calculation; again DO NOT type a space at this point in the line. Legal characters that can be typed in defining a calculation are: the numerals 0 through 9, the characters ^ , *, /, +, -, the letter F (for field), and the characters %, $, I, and E (see below for their function).

^ For exponential
* For Multiply
/ For Divide
+ For Add, and
- For Subtract.

Note: you can't define multiple calculations in a single line.

To enter fields in the calculation, type the letter F followed by the representative field character, e.g. for field 1, type 1, for field 5, type 5, for field 11, type B.

NOTE: See the chart in Table 1.2 for the character to type for the proper field.

Each calculation definition must be followed with one of the following characters:

% — This symbol will round the value to two decimal places.
$ — This symbol will round the value to two decimal places and add a dollar sign in front.
I — This symbol will strip the decimal and any digits following from the value.
E — This symbol will leave the value in the full floating point format.

Use of these characters will allow formatting of the values to be printed.

In defining calculations, type the line as you want it calculated. It will be read and calculated from left to right only. See Figure 4.3 below for examples of calculation definitions. Defined calculation lines will not be printed. To use the defined calculation, while typing the line to contain the calculated value, type CTRL — K (no space) and the number for the calculation you want, then the rest of the text (if any).

■C1F2*F3/100%	this calculation will multiply field 2 by field 3, divide by 100, and round the number to 2 decimal places
■C2F4+F7$	this calculation will add fields 4 and 7, place a dollar sign in front of the number, and round it to 2 decimal places
■C3FD - F5*1.1E	this calculation will subtract field 5 from field D (13) multiply this amount by 1.1 and leave it as a full floating point number. (No fixed numbering of places after the decimal place).
■C4100+F6/2I	this calculation will add the value in field 6 to 100, divide this by 2 and make the result an integer (strip off any numbers after the decimal place)
■C5F3+F4+F5+F6E	this calculation will add the values of fields 3 through 6 and leave it in full floating point format.

Figure 4.3
EXAMPLES OF DEFINED CALCULATIONS

END OF LINE (CTRL – N)

CTRL – N, as the command indicates, will place the cursor after the last character on the current line.

PRINTER CHAR (CTRL – P)

The PRINTER CHARACTER command will allow you to send special characters to your printer. Some printers will allow control characters or escape sequences to be sent to them allowing them to change character sets, character sizes, or special forms control. Please consult your printer manual for the proper use of these characters. To use the PRINTER CHAR command, it MUST be the first character typed on the line. You will see a small square (or question mark if you do not have a lower case chip) followed by a P. Simply type the characters you need to send to your printer. The ESC key will appear as a closed square bracket (]); control characters will be shown as a carat (^) followed by the character (e.g. CTRL – I would appear ^I). Normal characters from the keyboard will appear unchanged an and in upper case. Choosing the PRINTER CHAR command will automatically place the computer in UPPER LOCK. (See ESC below.) The command sequence you are sending to the printer must be the only thing on the line, i.e. there must be no text. Execution of a PRINTER CHAR will issue commands to your printer but will not print any text or issue a line feed unless line or form feed characters are included in the command.

NOTE: Since any character may be needed to send to your printer, editing of this line becomes difficult. The arrows are interpreted as their true ASCII characters; thus the right arrow is CTRL – U, and left arrow is CTRL – H. We recommend deleting the line and re-entering it if editing becomes necessary.

QUIT LINE (CTRL – Q)

The QUIT LINE command will accept all text to the left of the cursor. Any characters to the right of the cursor, including the character under the cursor will be lost.

ARGUMENT (CTRL – R)

The ARGUMENT command will insert an ARGUMENT into your text. For an explanation of arguments see that section above. To use the command, type CTRL – R. The computer will respond with a question mark and an R in inverse (black on white). You would type the argument number you wish to insert; the question mark will then be replaced with a small square (it will not be replaced if you do not have a lower case chip). The argument number will follow the R and the rest of the space reserved for the argument will be filled with the commercial at sign (@). You will be asked for the actual characters for each argument at the time of printing.

TAB (CTRL – T)

The TAB command will advance the cursor to the next tab position. The command will only work if the cursor is after the last typed character of the line. To reset your tab positions, see TAB SET in the COMMAND MODE section.

COMMANDS (CTRL – W)

This command will show you the LIST OF COMMANDS illustrated in Figure 4.1 and place the computer in the COMMAND MODE. The line you are currently typing will be lost.

ZAP A WORD (CTRL – Z)

This command is similar to DELETE CHAR (see above) except it will delete an entire word. To use this command, place the cursor (using the arrows) over the last character of the word to the left of the word you want to delete, then type CTRL – Z and the word will be deleted. In the sentence 'FLY AFAR TOGETHER', for example, pressing CTRL – Z while the cursor is on the 'Y' will zap "AFAR", resulting in 'FLY TOGETHER'.

ARROWS

The use of the arrows will move the cursor along the line in the direction indicated on the keys. The arrow keys are located under the RETURN key on the right side of the keyboard.

RETURN KEY

At any time while entering text, pressing the RETURN key will accept the entire line you are currently adding or editing, regardless of the position of the cursor within the line.

ESC KEY

The escape key (ESC), located on the left side of the keyboard above the CTRL key, is used as the case shift key. While typing text, pressing this key once will give you the next character typed as upper case followed by lower case characters. Pressing this key twice will "upper lock" your text, that is all text following will be upper case. Pressing ESC once while in upper lock will put you back in lower case. You should note that a flashing cursor indicates upper case input while a non-flashing cursor indicates lower case.

Note that case shift and lock using the ESC key applies only to the alphabetic characters. The special symbols (!, $, #, %, etc.) are input in the normal fashion using the SHIFT key.

SECTION 4.4 – EXTENDED EXAMPLES

EXAMPLE 1

```
 1  .C GET 1
 2  .F6@@@@@@@@@@@@@@@@@@
 3
 4  Dear Sir;
 5
 6      Your bill currently totals $.FB@@@@, on invoice  .F7@@@@;
 7  Prompt payment would be greatly appreciated.
 8
 9      Thank you for dealing with us.
10
11                                  Sincerely yours,
12                                  .R1@@@@@@@@@@@@
13  .C PAGE
14  .C GET NEXT
15  .C GOTO 2
16  .C EXIT
```

```
EASTERN COOP

Dear Sir;

    Your bill currently totals $234.34, on invoice 364523.
Prompt payment would be greatly appreciated.

    Thank you for dealing with us.

                                Sincerely yours,
                                Robert Clardy
```

SAMPLE PRINTOUT FROM ABOVE LISTING

In using this format for dun letters, you would first create a data file containing only those account records that are, for example, greater than 30 days old (using the appropriate numeric range search). Using that data file and the format listed, you can produce a set of customized overdue notices. Note that this example uses the fields and field lengths of the demonstration file; see Section 3.12. Note also that the signature line is an argument of 15 character length. The signature to be printed (the argument) is entered at the time of printing depending upon whom is doing the letters that day.

EXAMPLE 2

```
 1   C1F9*.15S
 2   C GET 1
 3                SALES SUMMARY REPORT ENDING R1@@@@@@
 4   C DO 5
 5
 6   REGION F1@  STORE F2@  SALESMAN F3@@@@@@@@@@@@@
 7   DATE OF PURCHASE  F5@@@@@  INVOICE # F7@@@
     ACCT # F8@@@
 8   CUSTOMER NAME  F 6 @@@@@@@@@@@@@@@@@@@@
 9   AMOUNT OF PURCHASE  SF9@@@@  AMOUNT PAID
     THIS INVOICE SFA@@@@
10   AMOUNT DUE  SFB@@@@  SALESMAN COMMISSION C1
11
12   C GET NEXT
13   C NEXT DO
14   C PAGE
15   C WAIT
16   C GOTO 3
17   C EXIT
18   C PAGE
```

```
                SALES SUMMARY REPORT ENDING 06-30-81

REGION EA  STORE 03  SALESMAN JANE DOE
DATE OF PURCHASE 810321  INVOICE # 364523  ACCT # E37692
CUSTOMER NAME EASTERN COOP
AMOUNT OF PURCHASE $487.34  AMOUNT PAID THIS INVOICE $250.00
AMOUNT DUE $237.34  SALESMAN COMMISSION $73.10

REGION EA  STORE 33  SALESMAN JOHN SMITH
DATE OF PURCHASE 810330  INVOICE # 321456  ACCT # N34256
CUSTOMER NAME NEW ENGLAND OFFICE
AMOUNT OF PURCHASE $1000.00  AMOUNT PAID THIS INVOICE $1050.00
AMOUNT DUE $-50.00  SALESMAN COMMISSION $150.00
```

Note: The above text will print 5 records per page skipping two lines between each record.

SAMPLE PRINTOUT FROM ABOVE LISTING

The above example is a sales summary. Line 1 calculates the salesman's commission, as 15% of the amount of purchase field, which is then printed in line 10. The DO command at line 4 and the NEXT DO command at line 13 cause the text between them (lines 5 through 12) to be printed, in this case, 5 times. The GET NEXT command at line 12 will get the next record from the disk. The net result is a summary report printing the report heading in line 3 with argument 1 for the date having 8 characters, printing 5 records in the format shown, ejecting the page and waiting for any key to be pressed (to allow you to load the next single sheet of paper). The program then starts over by printing the heading in line 3 and proceeding with more records. When all of the records have been printed, the EXIT command in line 17 is found and the line following (line 18) is executed causing the last page to be ejected.

SECTION FIVE

THE ANALYZER/PLOTTER

SECTION 5
THE ANALYZER/PLOTTER

SECTION 5.1 – OVERVIEW

The ANALYZER/PLOTTER is provided to allow you to generate a variety of numeric or visual summaries of your data. The module does a simple statistical analysis of numeric or monetary data and will also produce scatter graphs, line graphs, bar charts, or pie charts summarizing the data in an easy to interpret visual mode. The summaries and plotting can be performed on multiple data files.

Further, several graphs in different colors can be placed onto a single display, for comparisons between data files. Multiple graphs on a single display must be generated at one session. You cannot save a graph until a later date and then add more plots to it. The graphs can be saved for viewing later in a slide show format or reproduced on a printer if you have a high-res screen dump capability. All statistical summaries can also be printed for later reference.

The procedure for entering THE ANALYZER/PLOTTER is quite simple. From the MAIN MENU of your database application program, press '6', selecting the OUTPUT option. A list of four output choices will appear:

1) STANDARD FORMAT
2) THE REPORT GENERATOR
3) THE ANALYZER/PLOTTER
4) LABELS

When the '3' key is pressed, the ANALYZER/PLOTTER program will run.

SECTION 5.2 – THE ANALYZER-PLOTTER MENU

Once the Analyzer/Plotter program has been run, you will be asked to specify the data files to be included in the first analysis. One or more files may be selected for each analysis. When you have entered all the file name(s) to be included, type 0 when asked for the next file name, to indicate that no more files are to be included at this time.

After the data files to be included in the first analysis are specified, the menu illustrated in Figure 5.1, will appear. Any of the options listed may be selected by pressing the number adjacent to each. Each option will be described in detail below.

ANALYZER/PLOTTER MENU
FOR SALES JOURNAL

1 . . . DOT GRAPH
2 . . . LINE GRAPH
3 . . . BAR CHART
4 . . . PIE CHART
5 . . . SPECIFY DATA FILE (S)
6 . . . SAVE LAST GRAPH
7 . . . DISPLAY SAVED GRAPHS
8 . . . RETURN TO THE DATABASE
9 . . . TERMINATE

Figure 5.1
ANALYZER/PLOTTER MENU

SECTION 5.3 – THE DOT GRAPH

Selecting menu item 1, the DOT GRAPH (or scatter graph) option, will allow you to produce a graph and numeric summary of any two numeric or monetary fields of your data files in the format illustrated in Figure 5.2A and 5.2B. You should specify the data file or files to be included in the summary before selecting the DOT GRAPH option. Each data point plotted on the graph specifies the value of two data fields of your data.

STATISTICAL SUMMARY

DATA FILE: TEST DATA

X-AXIS	=	LINE 1
MINIMUM	=	0
MAXIMUM	=	95
MEAN	=	38.6956522
VARIANCE	=	1265.7668
STANDARD DEVIATION	=	35.5776166
Y-AXIS	=	LINE 2
MINIMUM	=	0
MAXIMUM	=	81
MEAN	=	36.5652174
VARIANCE	=	1038.80237
STANDARD DEVIATION	=	32.2304572
X/Y CORRELATION	=	-3548.04348

Figure 5.2A
DOT GRAPH STATISTICAL SUMMARY

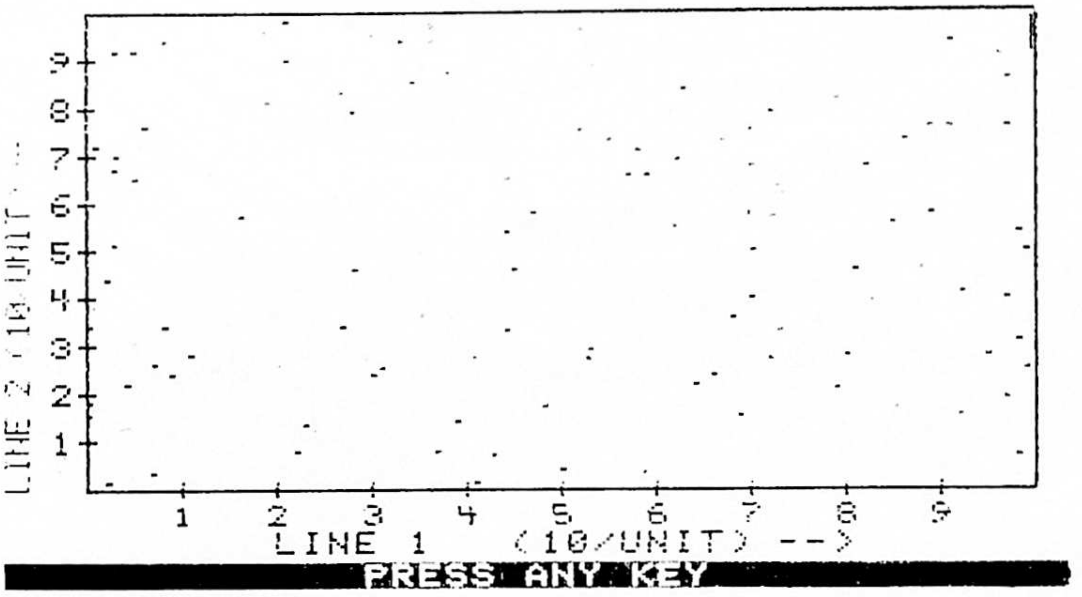

Figure 5.2B
DOT GRAPH DISPLAY

EXAMPLE: You may store data on dollars of sales and hours of time spent to make each sale (as well as other data not relevant here, such as salesmen's names, etc.). The dot graph illustrated in Figure 5.2B might be a plot of sales dollars (Y-axis) vs. hours (X-axis), invested for each sale. The graph might indicate that no appreciable increase of sales occurs after 8 hours have been invested. It is, therefore, wasteful to ever invest more than 8 hours on a given sales attempt.

When the DOT GRAPH option is selected, you will be asked the following questions:

1) Is the plot to be the first on a set of axis, or one of several graphs to be plotted simultaneously for comparison?
2) What color should be used for the plot (white, green, violet, orange, or blue)? (White is recommended for single plots.)
3) Which field of your data files should be plotted on the X-axis (horizontally across the graph)? (Select a monetary or numeric field.)
4) Which field of your data files should be plotted on the Y-axis (vertically up the graph)? (Select a monetary or numeric field.)
5) What is the range to be used for the X-axis? (That is, does the data in the field selected for the X-axis vary between 0 and 100, or 0 and 10000?)
6) What is the range to be used for the Y-axis?

Once these questions have been answered, the program will read in the specified data elements from your specified files and plot them as illustrated in Figure 5.2B. Any data points that are beyond the specified ranges will be plotted just beyond the edge of the graph, regardless of their value, simply to give you an idea of the number of points outside your specified ranges. There will then be a slight delay while standard deviation and correlation coefficients are calculated. When all calculations are complete, 3 bells will sound. At this time, you have several options. Pressing the 'M' key while viewing the graph will cause nine horizontal and nine vertical evenly spaced mesh lines to appear on the graph. Pressing the ESC key will return the program to the ANALYZER/PLOTTER menu. Pressing any other key (use the space bar, it's easiest), will flip the display between the graph and the statistical summary as shown in Figure 5.2A. Finally, while viewing the statistical summary, you can press the 'P' key for a printout of the information displayed.

Some printers have the capability of printing the contents of the high resolution graphics screen (the graph of Figure 5.2B). Software allowing a high-res screen dump, as it is called, is different for each model printer, and so is not provided with THE DATA REPORTER package. If you have a screen dump program*, the graph can be printed by either terminating the program using menu selection 9 and running the screen dump program, or saving the graph to disk using menu selection 6 and reloading it later, once the screen dump program has been run. You will have to determine which method is best, depending upon the requirements of your particular screen dump program.

* Such programs are available from Computer Station (618-452-1860) among others. Check with your local dealer or computer magazines for other sources.

After you've looked at the graph, you may wish to return to the ANALYZER /PLOTTER menu by pressing ESC, specify alternate data files, and perform another dot graph plot on the same chart. Then, when the first question is asked, you should respond that this is to be a continuation of a multi-plot series. With question 2, you should specify a different color than was used before so as to be able to distinguish the two plots. When the data fields for the X-axis and Y-axis are specified, the next plot will begin. The range questions will not be asked since the range must be the same as for the first plot if the same graph is to be used. The remainder of the graphing/analysis procedure is identical to the first with the same options upon completion.

SECTION 5.4 – THE LINE GRAPH

Selecting the LINE GRAPH option, menu item 2, will allow for a more summarized display than that provided by the DOT GRAPH. The data in the field specified for the Y-axis is averaged. For this purpose, the data is grouped into 10 ranges by the values in the field assigned to the X-axis. A line indicating these average values is displayed, essentially fitting a line to your data. Range lines indicating the minimum and maximum values can also be displayed if desired. Alternatively, standard deviation lines can be optionally displayed (see discussion below). Figures 5.3A and 5.3B illustrate sample outputs obtainable using the line graph option.

Figure 5.4B
BAR CHART DISPLAY

STATISTICAL SUMMARY
DATA FILE: DEMO DATA

RANGE	NUMBER	TOTAL	AVG.	MIN.	MAX.
1-2	7	140 1	20	0	42
2-3	3	87	29	10	64
3-4	0				
4-5	6	210	35	5	47
5-6	4	108	27	20	35
6-7	2	73	36	3	70
7-8	2	44	22	14	30
8-9	5	205	41	20	80
9-10	4	140	35	4	91
10 - UP	17	1054	62	21	83

OVERALL MEAN =41
STANDARD DEVIATION = 16.35

Figure 5.3A
LINE GRAPH STATISTICAL SUMMARY

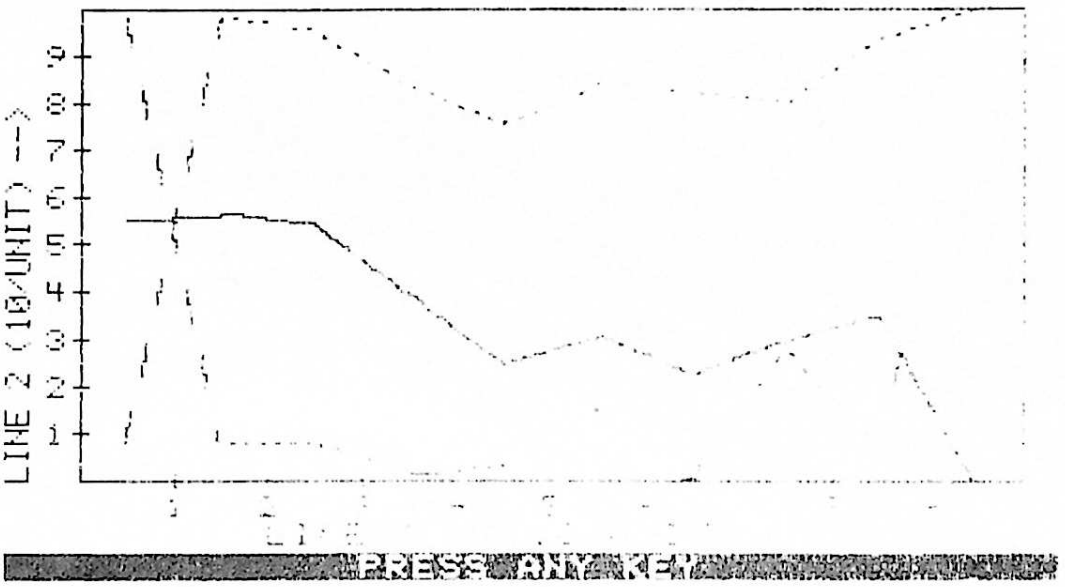

Figure 5.3B
LINE GRAPH DISPLAY

The questions to be answered to perform a LINE GRAPH, are identical to those required by the DOT GRAPH option with one addition. You must also elect to:

1) SHOW RANGE LINES
2) SHOW STANDARD DEVIATION
3) SHOW NEITHER

For multiple graphs displayed concurrently, we strongly recommend that range and standard deviation lines not be used as the graph becomes too cluttered. For single graphs, they may be used or not, as desired.

The data is summarized differently for a LINE GRAPH than for a DOT GRAPH. Since averages are being displayed, the data is divided into 10 subgroups along the X-axis. The number of occurrences in each of these ranges, the totals, averages, minimum values, and maximum values are all calculated and displayed on the statistical summary display. The overall mean and standard deviation are also displayed. This statistical data will help you analyze the meaningfulness of the calculated line.

As with the DOT GRAPH, multiple plotting in various colors may be performed. The ranges of the X-axis and Y-axis must remain the same as for the first plot used.

EXAMPLE: You have already performed a DOT GRAPH on your data, and the results show a clustering of data points (as opposed to random, evenly spaced points) indicating a trend may be present. You can now perform a LINE GRAPH to better specify that trend and use it for predictions or forecasts.

SECTION 5.5 – THE BAR GRAPH

Selecting the BAR GRAPH option, menu item 3, will allow for a different method of summarizing your data. Instead of a simple average of data elements, you can divide your data into up to 10 categories (bars) specified by either 10 keywords to be matched or 10 ranges into which a specific data field must fall. This is similar to the search for a keyword or search for a value within a numeric range described earlier in THE DATA REPORTER section. The major difference is that here up to 10 searches can be performed simultaneously, and the results graphed.

The actual graph can be a simple count of the number of records found matching the specifications or a total of some other field may be performed and displayed. Figures 5.4A and 5.4B illustrate the outputs obtainable with this option.

BAR CHART STATISTICAL BREAKDOWN

DATA FILE: TEST DATA

	RANGE	NUMBER	PERCENT
1	0-10	0	0%
2	11-20	0	0%
3	21-30	4	17.3913043%
4	31-40	1	4.34782609%
5	41-50	0	0%
6	51-60	1	4.34782069%
7	61-70	2	8.69565217%
8	71-80	1	4.34782609%
9	81-90	2	8.69565217%
10	91-100	2	8.69565217%
11	OTHER	10	43.4782609%

Figure 5.4A
BAR CHART STATISTICAL SUMMARY

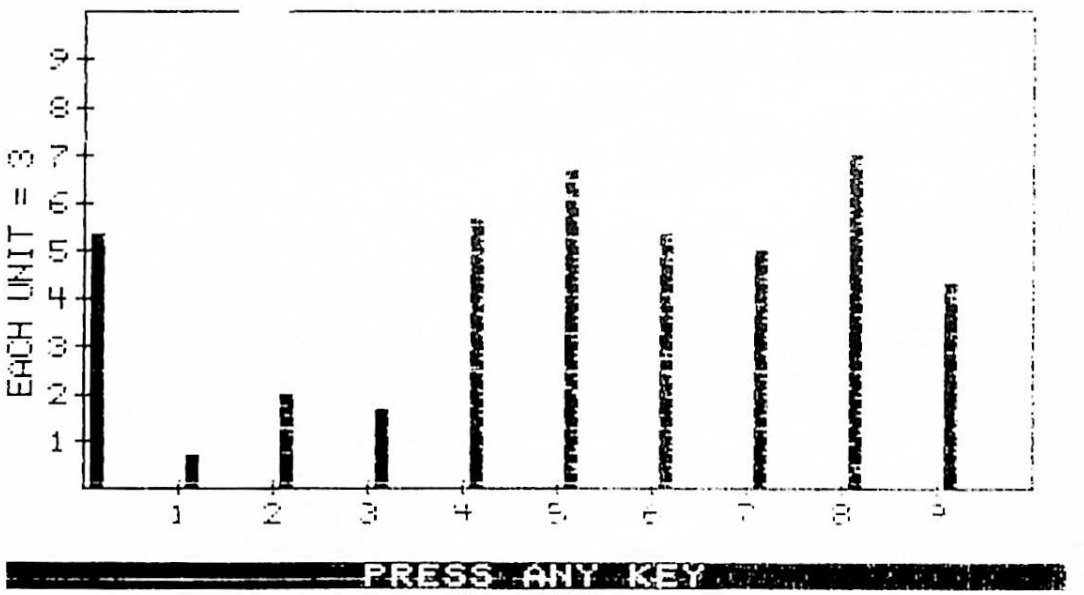

Figure 5.4B
BAR CHART DISPLAY

EXAMPLE: Assume that your data files contain records of individual sales including the salesman's name, the dollar value of the sale, and other data not relevant here. By categorizing your data by salesmen's names (10 keywords = names of 10 salesmen) and performing a simple count, you can find how many sales each salesman made (a simple count of occurrences). Alternatively, you can total the value of the sales field to find the number of dollars sold for which each salesman is responsible (a total of another field).

When the BAR CHART option is selected, you will be asked:

1) Is the plot to be the first on a set of axes or one of several graphs to be plotted simultaneously for comparison?
2) What color should be used for the plot?
3) Should the data be segmented by numeric ranges or by keywords?
4) Which field should be used to segment the data (by matching keywords or fitting the specified ranges)?
5) Do you wish to count occurrences of the records matching the specifications or total some other field? (The second example in this section counts simple occurrences of records in the six specified categories, while the third example totals the amount owed field based on length of time outstanding. (See below).
6) If totalling some other field, which one?
7) How many segments do you wish (keywords or ranges)?
8) What ranges/keywords do you wish to use?

After answering these questions, the data fields previously specified are read in, and the bar chart is produced. There is room on a bar chart for 3 adjacent plots. Additional plots can be made in which subsequent bars overlap an earlier plot if desired. Data elements that do not match any of the keywords or fit any of the specified ranges will be counted/totalled with the result being plotted and displayed as 'OTHER' on the statistical summary.

After the data to be displayed in the bar chart has been totalled, the program automatically determines the vertical scale of the graph so that all of the bars will display properly. Thus, if totals of 20 units, 40 units, 86 units, and 92 units are calculated for a 4-bar bar chart, the vertical scale will be set at 100 units so that all of the bars can be fully plotted.

There are two exceptions to this general rule. If the 'OTHER' catagory is larger than all other categories, the scale will not be adjusted for 'OTHER'. Further, if a second or third plot is performed on the same chart, the scale will not vary between plots. In both of these cases, if a bar goes beyond the top of the chart, it will be shown with an upward pointing arrow to indicate that it continues beyond the edge of the screen.

As with the other graphs described, mesh lines can be displayed by pressing 'M' while viewing the graph. The summary can be printed by pressing 'P' while viewing it. Pressing ESC returns the program to the ANALYZER/PLOTTER menu, and any other key will cause the display to alternate between the graph and the summary.

EXAMPLE: How many of our clients buy product A, product B, product C, product D, product E, or product F, i.e. which product has the widest distribution? Segment the data by keywords, specifying Product A as the first keyword, etc. In answer to question 5, specify that occurrences should be counted. The bar chart will have a bar for each of the specified products. The height of each bar will indicate how many have been sold.

EXAMPLE: Let's produce an aging report on our accounts receivable. What is the total dollars owed that is more than 120 days outstanding, 90 days, 60 days, 30 days, or less than 30 days? To do this analysis, the dates must be in a numeric format (e.g. 810103 for year = 1981, month = January, day = 3), and a 'range' search is performed on the indicated date ranges with totalling of the amount outstanding field. The bar chart will have a bar for each of the the days outstanding ranges. The height of each bar will indicate the accounts receivable of that age outstanding. The total dollar value of all the bars will equal the total accounts receivable.

SECTION 5.6 – THE PIE CHART

Selecting the PIE CHART option, menu item 4, will cause displays such as illustrated in Figures 5.5A and 5.5B to be generated. The questions are identical to those required by the BAR CHART option except that the first two are omitted; you cannot do multiple pie charts in one display, and the color will always be white. Applications and examples for the PIE CHART are the same as for the BAR CHART; the PIE CHART is simply an alternative display mode.

PIE CHART STATISTICAL BREAKDOWN
DATA FILE: DEMO DATA

	KEY WORD	NUMBER	PERCENT
1	0 TO 9	1	2.77777778%
2	10 TO 19	10	27.7777778%
3	20 TO 29	10	27.7777778%
4	30 TO 39	3	8.33333334%
5	40 TO 49	1	2.77777778%
6	50 TO 59	5	13.8888889%
7	60 TO 69	6	16.6666667%
8	OTHER	0	0%
	TOTALS	36	100.0%

Figure 5.5A
PIE CHART STATISTICAL SUMMARY

BAR CHART STATISTICAL BREAKDOWN
DATA FILE: DEMO DATA

	KEY WORD	NUMBER	PERCENT
1	0 TO 9	1	2.77777778%
2	10 TO 19	10	27.7777778%
3	20 TO 29	10	27.7777778%
4	30 TO 39	3	8.33333334%
5	40 TO 49	1	2.77777778%
6	50 TO 59	5	13.8888889%
7	60 TO 69	6	16.6666667%
8	OTHER	0	0%
	TOTALS	36	100.0%

Figure 5.5B
BAR CHART STATISTICAL SUMMARY

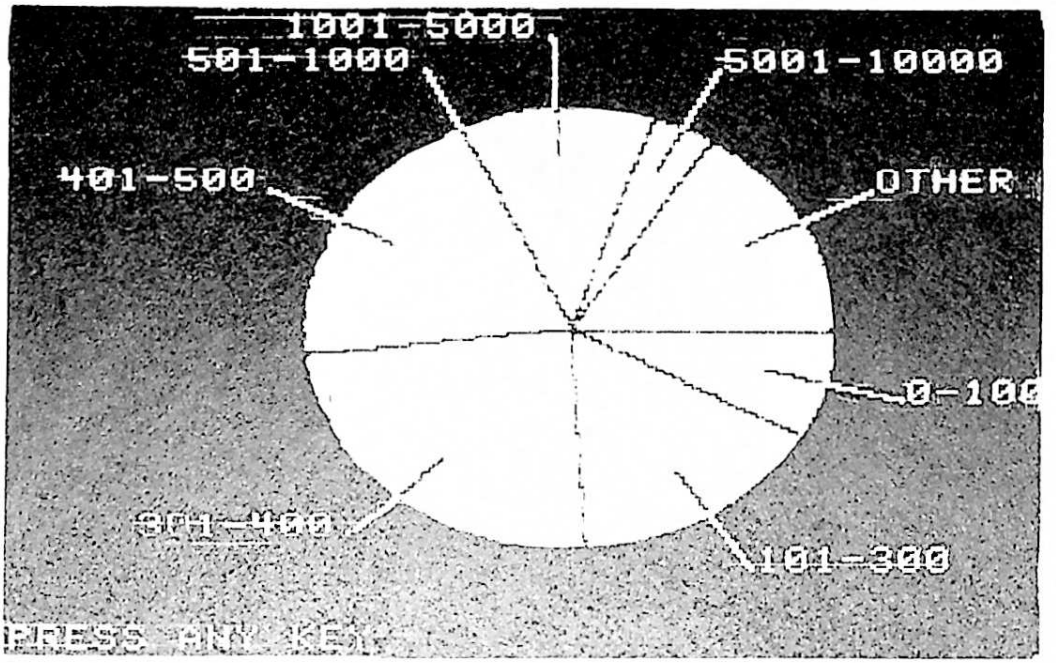

Figure 5.5B
PIE CHART DISPLAY

SECTION 5.7 – SPECIFY DATA FILES

Before any graph type is selected, the data files to be used for the graph should be specified. When menu item 5 is selected, a numbered list of data files on the data disk, in the last accessed disk drive will be displayed. Any number of files may be specified though the total number of records for any single plotting should be limited to 800. All of the files specified must be from a single data disk. THE DATA REPORTER can be used to move files from several disks onto a single disk to be used for a given analysis if necessary. When specifying data files, three inputs may be made.

Pressing one of the number keys from 1 to 9 will cause the indicated data file to be included in the analysis/plot. Pressing RETURN will cause more file names to be displayed. If all files on the disk have been displayed, the list will begin again from the top. Multiple data disks can be quickly scanned for a desired file in this manner. Finally, pressing 0 will cause a return to the ANALYZER/PLOTTER menu.

SECTION 5.8 – SAVE, DISPLAY, AND END

The remaining options on the ANALYZER/PLOTTER menu are very straight forward. Menu item 6, SAVE LAST GRAPH, will cause the high resolution display of the last graph generated to be saved to disk for later viewing or printing. At the time, you will be asked for a name for each graph saved.

Menu item 7, DISPLAY SAVED GRAPHS, allows you to set up a slide show of up to 10 previously saved graphs. After entering the names of the graphs to be included, the graphs will be displayed, one at a time. Simply press any key to display each successive graph, and press ESC when finished.

Menu item 8, RETURN TO THE DATABASE, will cause your application program to be rerun. The appropriate disk should be inserted into the last drive accessed before this option is selected. Unsaved graphs will be lost.

Menu item 9 TERMINATE, ends the program. The program can be re-entered with all variables, data, and screens intact, by typing GOTO 370 and pressing RETURN.

SECTION 5.9 – LABELING YOUR GRAPHS

The standard labeling of axes and scale indicators are illustrated in each of the graph figures of Section 5. These labels may be inappropriate in some instances. When using dot graphs, line graphs, and bar charts, you can, therefore change the labels, add titles, etc. as you desire.

To change the labeling, press 'L' while a graph is displayed on the screen. You will then see a list of Labeling Commands as shown in Figure 5.6. This list includes the control (CTRL) keys used to move the cursor around the screen. Their relative placements are illustrated in Figures 5.7 and 5.8. These keys can be used to exactly place your cursor before typing your labels, titles, etc. To use these CTRL character commands, hold down the CTRL key while pressing the indicated character. The repeat key can be used for rapid movement.

Once the cursor is placed, pressing CTRL D will allow you to specify the direction of typing (alternately vertically from bottom to top of the screen vs. horizontally across the screen from left to right). Once the cursor position and direction are specified, type any character normally to type your label. Your label will be in all upper case. In case of error, use the left arrow key (←) to backup and erase whatever you have just typed. Once you are satisfied with your graph's labels and titles, pressing RETURN accepts the labeling job. CTRL L redisplays the list of Labeling commands, while ESC returns you to the ANALYZER/PLOTTER Menu.

ESC	=	RETURN TO MENU
RETURN	=	ACCEPT LABELING
CTRL D	=	CHANGE DIRECTION
CTRL W,T	=	MOVE ONE CHAR/DOT UP
CTRL A,F	=	MOVE ONE CHAR/DOT LEFT
CTRL S,G	=	MOVE ONE CHAR/DOT RIGHT
CTRL Z,V	=	MOVE ONE CHAR/DOT DOWN
L ARROW	=	BACKUP AND ERASE
CTRL L	=	LIST COMMANDS

Figure 5.6
LABELING COMMANDS

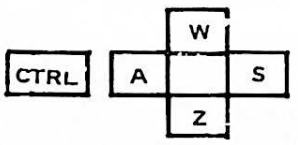

Figure 5.7
MOVE CURSOR ONE CHARACTER

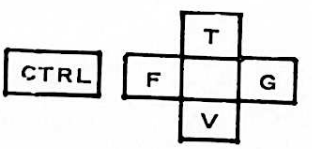

Figure 5.8
MOVE CURSOR ONE DOT

SECTION SIX
SORT/MERGE

SECTION 6
SORT/MERGE

The SORT/MERGE program supplied on the master disk will allow you to sort up to five (5) files sequentially. For example, if you have five files on your disk in random order, and you would like to have them sorted in sequential order by zip code, this program will sort all five files and produce new files sorted by the zip code field. The first new file might contain codes 00000 to 19999, the second file 20000 to 39999, etc. You can specify that the newly sorted data all be combined into one file (if it will all fit), two files, etc. as desired.

The program will first sort each selected file independently and save these sorted files back to disk; then one record of each file will be read into memory. These records will be compared and the lowest occurrence (see Section 3.7) will be stored in the big buffer (a kind of storage bin). A new record is obtained from the file containing the record that was just stored in the big buffer, and this record will be compared to the ones we still have. This process continues until the big buffer becomes full; then the program will save (in order) the data the buffer holds to disk, clear out the big buffer, and continue comparing records where it left off before saving.

The operation is similar to a person having 5 trays containing any number of rocks, sorted in order of size, around him. His job is to take the first rock from each of the 5 full trays, place them in front of their own trays (for reference), measure each rock, and place the smallest in the first position of the working tray; then take another rock from the tray the smallest rock had come from and place it in front of this tray. He will repeat the process until his working tray is full, at which time it gets transferred to the empty tray number 1. His job continues until all the rocks are sorted.

The limitation of only 5 files per SORT/MERGE can be overcome by doing multiple merges, merging the results of one merge with additional files. For instance, SORT/MERGING 12 data files of 20 records each would be accomplished by first SORT/MERGING files 1-5, storing the results in a file called RESULTS1. Then, RESULTS 1 and files 6-9 can be sort merged and the results stored in RESULTS 2. Finally, RESULTS 2 and files 10-12 can be SORT/MERGED and the results stored in RESULTS 3. At this point, RESULTS 1 and RESULTS 2 can be deleted. RESULTS 3 contains all of the records from files 1-12 sorted properly by the specified field(s).

To perform a multiple file SORT/MERGE, select menu item number five (5), SORT, from the MAIN MENU and select multiple files. You will first be asked to select one, two, or three fields by which to sort (see the SORT option of THE DATA REPORTER for examples of sorting by three fields). You will then enter the field (or fields) by which you will sort. Next you will be asked for the name of the new series of files that will result from the SORT/MERGE. This can be any name representative of your data. As each newly created file is saved, it is automatically given an extension number 0-4 to help identify the order of your sorted files. If you specify that your new files be called 'NEW DATA', for instance, the files will be saved as 'NEW DATA.0', 'NEW DATA.1', etc.

You must next specify which disk slots and drives you are using for the merge. The default values are slot 6, drive 1 for the original, unsorted files; slot 6, drive 2 for the scratch disk of presorted files; and slot 6, drive 1 for the results disk. These values can be changed to any slot/drive combination, including a single drive for all three.

The program will then ask for the number of free records you want left at the end of each file. If, for example, you know you will later add 4 or 5 names to each file of your mailing list, leave a few record spaces free. Otherwise the program will fill each file completely. The next bit of data you will need to supply the program is the names of the files you wish to sort. These files may be on as many as five different disks, but you must work on one disk at a time. Place the (first) disk with files to be sorted in drive 1 and type the name of the first file (pressing RETURN instead of entering a file name will give you a catalog listing of the disk). When you are finished with each disk type F and press the RETURN key. You will be shown a list of the files you have selected and asked if everything is correct. Typing N (for No) will allow you to edit any of the file names, while typing Y will start presorting the files specified.

At this point, you will be instructed to place a blank, initialized diskette into your second disk drive and press RETURN. (See your DOS manual for the proper way to initialize a disk). The files will be presorted and temporarily stored on this diskette. After all the files have been presorted, you will be given the opportunity to add files from another diskette. After five (5) (or fewer if you so desire) files have been presorted, you will be asked to place a blank initialized disk into drive 1. You will be instructed to not touch your computer during the merge process. During the time that computer is processing your files, the computer must be left alone, except as you are instructed by the program, as opening the disk drive door, for example, would probably cause a loss of data and the process would have to be started again. When the program is finished presorting and merging your files, you will hear three (3) beeps and will be asked to remove the disk from drive 1 and label it with the name that you supplied. The program ends at this point, and returns to your application program.

SECTION SEVEN

THE

RECORD REFORMATTER

SECTION 7
THE RECORD REFORMATTER

SECTION 7.1 – OVERVIEW

The RECORD REFORMATTER is provided to save you time and effort in the event that you change your mind about the format of your data after already entering a number of records. It also allows you to create a new data file using just part of the data from an old one. Normally, when you use THE DATA REPORTER, you will specify a particular format appropriate for your particular needs. This specified format includes the number of fields (e.g. name, ID number, amount, etc.) for each record and a given number of characters for each field (e.g. name field contains 20 characters). If, after working with your application program for a week or two, you find that the format you specified is not adequate for your needs (for example, you have many people with 25 character names), you can change this format at any time. The procedure for changing a format was discussed in Section 2 and is quickly done.

Now that the format has been changed, what about all those data files that you laboriously typed in while using the old format? If you load one of them and look at it with the new application program, you will find that the data no longer lines up properly in the specified fields. Figure 7.1 illustrates a simple mailing list application in which 5 characters were subtracted from the name field. Needless to say, this is not satisfactory. You have changed the program to a new format, now you have to change the format of *all* of your data files that are to use the new format. As the RECORD REFORMATTER reformats your data files, it will save them to a second data diskette. This prevents accidental loss of any data if you change your mind or wish to reformat again for any reason.

To run the RECORD FORMATTER from your database application program, select menu item 8, SPECIAL FUNCTIONS, from the MAIN MENU. You will be given the choice of:

1) DISPLAY TOTALS
2) GLOBAL EDIT
3) REFORMAT DATA FILES

Press the 3 key, make sure that your application program disk is in drive 1, and press RETURN. THE RECORD REFORMATTER program will be run.

RECORD 1

NAME	JOSEPH ANDERSON	121S
ADDRESS	OUTH MAIN ST	METRO
CITY	POLIS	CALIF
STATE	ORNIA	12345
ZIP		

Figure 7.1
PROGRAM-DATA FORMAT MISMATCH

SECTION 7.2 – REFORMATTING RECORDS

Reformatting a data file is a two step process. You must specify the format to be used on your new records, and also which fields of the old records are to be transferred to which fields of the new ones. When the RECORD REFORMATTER is run, you will need to know both the old and new formats for your records. The program will first ask you how many fields your old and new records contain. You must then indicate how many characters each field of both the old and the new format contains. Figure 7.2 illustrates the information you must provide at this point. The reformatting illustrated in Figure 7.2 involves adding one additional field and making two fields longer by 5 characters each. Overall, the old records were 60 characters long, and the new records will contain 80 characters.

After you have entered all of the field lengths, you will be given the opportunity to modify any entry, if required. The program will ask "SATISFIED (Y/N)?". If you press N for No it will ask "MODIFY WHICH LINE (0-6)?". You may indicate any line that should be changed and type in new field lengths. When all values are correct, press the "Y" for Yes key when asked "SATISFIED (Y/N)?", and you will move on to the next step of the reformat process.

		OLD	NEW
0.	NO. OF FIELDS	5	6
1.	CHARS IN FIELD 1	20	20
2.	CHARS IN FIELD 2	10	10
3.	CHARS IN FIELD 3	5	10
4.	CHARS IN FIELD 4	15	20
5.	CHARS IN FIELD 5	10	10
6.	CHARS IN FIELD 6		10

Figure 7.2
FIELD REFORMATTING

SECTION 7.3 – REORGANIZING DATA

In addition to simply changing the number of fields and field lengths, you may wish to completely reorganize your data. You can, for example, move the contents of any one field to any other field position, create a new database with only the data from fields 1, 2, and 5 of the old one, etc.

To accomplish such desired changes, the program will now ask you for input as illustrated in Figures 7.3A and 7.3B. For each field in your new records, you must specify which data from the old format should be placed in the new field. If all data is to stay in the same order, you would indicate that field 1 of the new records should contain the data from field 1 of the old records, field 2=field 2, etc. This kind of operation is illustrated by Figure 7.3A which continues the example of Figure 7.2, and would be used if the only change to be made was in field lengths or in adding a new field. If, however, you wished to rearrange your data drastically, for example, dropping several fields and adding some new ones, you would make inputs such as illustrated in Figure 7.3B. In the example, field 4 of your old records

was dropped (as well as 6, 7, 8, 9, etc. if they were present), two new fields were added (the data for fields 3 and 4 came from nowhere as indicated by entering 0), and the other fields were rearranged.

EXAMPLE of Figure 7.3B: You have an existing data file which contains mailing list data and phone numbers of your customers. You used it to print mailing labels to send out new product announcements. Now, you wish to create a new database with customer name, phone number, ID number, and amount owed for use as an accounts receivable system. The name and phone number come from the old data file, but the ID number and amount owed are new fields and should remain blank until data can be entered into them later using a record edit process.

New Record Field	From Field
1	1
2	2
3	3
4	4
5	5
6	

Figure 7.3A

New Record Field	From Field
1	3
2	5
3	Ø
4	Ø
5	1
6	2

Figure 7.3B

FIELD REORGANIZING

SECTION EIGHT
LABELS

SECTION 8
LABELS

The LABELS program gives THE DATA REPORTER almost unlimited flexibility in the production of labels of any sort. You can print any number of adjacent labels across a sheet of paper with any vertical spacing between labels as required by your label stock. The labels can contain up to 6 lines of printing with up to 10 fields of data in each line. Note, however, that you must work within the constraints of your printer and paper. The most obvious application is mailing labels, but this program could also print data onto 3x5 cards, inventory bin labels, diskette labels, price tags, or any similar format.

The label format of printing can be obtained by first selecting option number six (6), OUTPUT, from the MAIN MENU, then selecting item number four (4) LABELS from the OUTPUT sub-menu. This will load into memory the label printing program. (If you have a data file in memory and it has been modified or added to, you will be asked if you want to save it to disk before the new program loads.)

When the LABELS program first runs you will see a series of questions (see Figure 8.1 below) on the screen. Question number one asks for the number of labels to be printed adjacent, i.e. in one row across the page. Question number two inquires about the designated margin for the first label, or how many characters should be skipped from the left edge of your paper before the first label begins printing. The third question specifies the width of each label or how many characters wide it is. The final question deals with the number of lines to skip between each label. This is a fairly straight-forward question; it is the number of lines needed between the bottom of one label, and the top of the next. Note that each label is single-spaced between lines of printing. To change the value of any of the label setup questions, simply type the number associated with that question and enter the new value. There is no need to press the RETURN key when entering the number of a question.

When all of the data on the screen is correct, press the RETURN key, and you will proceed to setting up the labels. The program will need to know which field or fields should be printed on each line of your labels. A maximum of six (6) lines are available for each label (see Figure 8.2); select item number one to supply the program with the number of lines you are using. You can have a maximum of ten (10) fields per line on the label. Items two through seven will allow you to specify the fields you want printed on each line of the label. Type each field number character (see Table 1.2 for the field number to character conversion) in order in the line in which you want the field printed. To edit a line on the label, select the proper number for that line and reenter each field for that line.

```
THE DATA REPORTER LABEL SETUP

1 . . NUMBER OF LABELS ADJACENT                    Ø
2 . . LEFT MARGIN FOR FIRST LABEL                  Ø
3 . . WIDTH (IN CHAR) OF EACH LABEL                Ø
4 . . LINES TO SKIP BETWEEN LABELS                 Ø

ENTER NUMBER TO CHANGE
PRESS RETURN TO CONTINUE
```

Figure 8.1
LABEL SETUP

```
LABEL INFORMATION

FOR EACH LABEL YOU ARE ALLOWED 6 LINES AND A MAXIMUM
OF 10 FIELDS PER LINE.

  1 . .  LINES PER LABEL                                   Ø

  EACH LINE CONTAINS THE FOLLOWING FIELDS

  2 . .  LN1    Ø  Ø  Ø  Ø  Ø  Ø  Ø  Ø  Ø  Ø
  3 . .  LN2    Ø  Ø  Ø  Ø  Ø  Ø  Ø  Ø  Ø  Ø
  4 . .  LN3    Ø  Ø  Ø  Ø  Ø  Ø  Ø  Ø  Ø  Ø
  5 . .  LN4    Ø  Ø  Ø  Ø  Ø  Ø  Ø  Ø  Ø  Ø
  6 . .  LN5    Ø  Ø  Ø  Ø  Ø  Ø  Ø  Ø  Ø  Ø
  7 . .  LN6    Ø  Ø  Ø  Ø  Ø  Ø  Ø  Ø  Ø  Ø

  CHANGE WHICH          RETURN = NONE
```

Figure 8.2
INCLUDED FIELDS

When the label is setup the way you want it printed, press the RETURN key and the Label Menu, as illustrated in Figure 8.3, will appear. Selecting item one, CHANGE LABEL SETUP, will cause you to go back to the start of the program so that a new label format may be entered. Choosing number two, PRINT ALL LABELS THIS FILE, will start the labels printing at record one and continue through the on-line file.

At any time during printing you wish to stop, simply press the ESC key, and you will be given the option of returning to the menu or continuing printing by pressing the RETURN key. Menu item three, PRINT ONE LABEL, will ask for the record number of the one that you would like to print. Input the proper number and press the RETURN key. After the label has been printed you will return to the Label Menu. Item four, PRINT STARTING AT, will allow you to print labels starting at a particular record number through the rest of the file. You will be asked for the starting record number; type this number and press the RETURN Key. Selecting number five, PRINT ALL FILES, will print labels of all records in all files on a disk. As before, printing can be halted by pressing the ESC key. PRINT ALL FILES will

not print labels for the records in memory. Usually these records will be on disk, but if you have changed data disks and want the records in memory to be printed as well, then use option six to save that file to disk before printing. Selecting item six, DISK ACCESS, from the menu will give you access to all of the disk commands of THE DATA REPORTER (see Section 3.9). Selecting item seven, RETURN TO DATA REPORTER, will ask you to place your application disk in drive one, and press the RETURN key. This will run your application disk. Item eight, QUIT, will stop the program and leave you in BASIC. To restart the LABELS program, type 'RUN' followed by the RETURN key.

NOTE: The LABELS program will not save your label format which must, therefore, be reentered each time the LABELS program is run.

```
PRINT LABELS MAIN MENU
FOR SALES JOURNAL

1) . .   CHANGE LABEL SETUP
2) . . .  PRINT ALL LABELS THIS FILE
3) . . .  PRINT ONE LABEL
4) . . .  PRINT STARTING AT
5) . . .  PRINT ALL FILES
6) . . .  DISK ACCESS
7) . . .  RETURN TO DATA REPORTER
8) . . .  QUIT
          WHICH
```

Figure 8.3
LABELS MENU

SECTION NINE
TECHNICAL SECTION

SECTION 9
TECHNICAL SECTION

SECTION 9.1 – THE DATA REPORTER OUTLINE

LINE(S)	ROUTINE DESCRIPTION
3	CALCULATED FIELD
4-7	SINGLE KEY INPUT
8-30	SEARCH ROUTINES
32-58	RESULTS OF SEARCH (DISPLAY, PRINT, DELETE, ETC.)
60-64	DOLLAR FIELD FORMATTING
66-68	TURN ON PRINTER
70-72	READ ONE RECORD FROM BINARY FILE ON DISK
74-110	STRING INPUT
112-140	SHORT MULTI-PURPOSE ROUTINES
142-152	QUICK LIST
154-160	GENERAL PURPOSE ROUTINES
162-172	MULTI-FILE / MULTI DISK PROCESSOR
174-190	MENU CHOICE INPUT
192	START A NEW FILE
194-208	ENTER RECORDS
210-283	DISPLAY RECORD
240-242	LIST RECORDS
244-246	SORT
248-258	SPECIFY SEARCH RESULTS
260-276	SPECIFY SEARCH CRITERIA
278	OUTPUT CHOICE
280-298	STANDARD OUTPUT OPTIONS
300-324	PRINT RECORDS AND SUBTOTALS
325-326	PRINT GRAND TOTAL
328-332	TERMINATE
334-340	LIST FIELD HEADERS FOR SEARCH SELECT
342-356	DISPLAY RECORD HEADERS & FIELD NUMBERS
358-363	EDIT
364-368	INITIALIZATIONS
370	RE-ENTRY POINT
372-376	MAIN MENU
378	DISK SLOT/DRIVE/VOLUME SELECT
380	DISK ACCESS MENU
382	LOAD A FILE
384-386	SAVE A FILE
388-392	APPEND A FILE
394-396	CONVERT SAVED TEXT FILE DATA
398	CATALOG
400-402	DELETE A FILE
404-424	DISK ACCESS UTILITY ROUTINES
426-434	ERROR TRAP
436	SPECIAL FUNCTIONS MENU
438	GLOBAL EDIT
440-448	TOTALS
450-464	RUN OTHER PROGRAMS ON DISK

SECTION 9.2 – SELECTED PROGRAM MODIFICATIONS

The modifications listed below will allow you to change several features of the specified programs. In all cases, using your master disk, boot your disk and select QUIT (option 5 in Initial Menu). Make the changes by typing:

LOAD (program name) (CR)
type lines listed
UNLOCK (program name) (CR)
SAVE (program name) (CR)
LOCK (program name) (CR)
*CR = Carriage return.

THE DATA REPORTER

1) To obtain an 'OR' search instead of an 'AND' search (i.e. if key 1 or key 2 or key 3 is true, the search will find the record), change these lines.

```
14 J=D% (SF(Z)):K = LEN (S$(Z)): FOR I = 1 TO J – K: IF S$(Z) <> MID$
   (F$(SF(Z)),I,K) THEN NEXT I: RETURN
16 GOTO 32
18 I = VAL (F$(SF(Z))): IF I > MX (Z) OR I <MN(Z) THEN RETURN
20 GOTO 32
22 J = D%(SF(Z)):K = LEN (S$(Z)): FOR I = 1 TO J – K: IF S$(Z) = MID$
   (F$(SF(Z)),I,K) THEN RETURN
24 NEXT I: GOTO 32
28 REM
30 & G,S:T = S: FOR Z = I TO SF: ON SM(Z) GOSUB 14,18,22: NEXT Z:
   GOTO 28
32 POP : IF SR(1) THEN GOSUB 210
```

2) To input text file data from another database, from text processors, or from any other source, you must:
   a) Setup a database with similar format to your text data (field lengths need not be identical).

```
395   INPUT "WHAT IS THE LENGTH OF THE RECORDS TO LOAD?";L:
        INPUT "ENTER FILE NAME TO CONVERT?"; N$:= PRINT
      D$ "OPEN"N$",L"L: I = 1
396   PRINTD$"READ"N$",R"I: FOR J = 0 TO NF-1: INPUT A$:
      &L,F$(J) = A$: NEXT  J:&P,N+1 : N = N+1: I = I+1: GOTO 396
397   POKE 216.0: GOTO 370
```

THE REPORT GENERATOR

1) For line length > 132 characters, change line 40 using the desired number of characters instead of XXX:

```
40 TEXT: HOME: VTAB10: INPUT "WHAT IS YOUR MAXIMUM LINE
   LENGTH?"; L$:L% = VAL (L$):L% = L%+65*(L$=0) : I = 1
   ON L% > XXX GOTO 40: GOTO45
```

2) To increase the number of allowable arguments, replace XX with your desired number of arguments in these lines:

```
15 TEXT : HOME: VTAB 1: HTAB 13: INVERSE : PRINT "REPORT
   GENERATOR": NORMAL : VTAB 10: HTAB 3: INPUT "ENTER NUM-
   BER OF ARGUMENTS "; AR$:AR = VAL (AR$) : ON AR > XX GOTO
   15: IF AR = 0 THEN DIM AR%(1):AR$(1) = 0: GOTO 30
20 DIM AR%(XX):AR% = AR: FOR I = 1 TO AR%: PRINT "ENTER
   LENGTH OF ARGUMENT # I;: INPUT " ";AR%(I): NEXT I
```

3) To *not* have excess spaces stripped off the ends of data being printed, change line 1615 as below:

```
1615 REM
```

4) To *not* have excess spaces stripped off the beginnings of data being printed, change line 1617 as below:

```
1617 REM
```

SECTION 9.3 – THE AMPERSAND SUBROUTINES

The machine language ampersand routines do the manipulation and storage of data for this program. The routines are written in machine language and make THE DATA REPORTER operate at speeds far greater than possible in BASIC. The program uses routines with the commands listed in Table 9.1, which are discussed below. Two buffers, referred to in the text which follows as the small buffer and the large buffer, are utilized by the machine language routines to process data. Each record is constructed in the small buffer using the techniques discussed below. Records are then transferred to the large buffer for on-line storage.

Commands	Meaning
&F	Format
&E	Extended Formatting
&P	Store
&G	Get
&S	Search
&R	Right Justify
&L	Left Justify
&M	Maybe justify
&X	Sort
&C	Catalog

TABLE 9.1
AMPERSAND COMMANDS

FORMAT (&F and &E):

The string must be defined via the format function (&F). Any string may be used, FS is used only as an example.

Formatting Main Field:
&F, F$(0), 10;F$(1),20

This formats FS and sets up two fields within the larger string (FS). The 10 and 20 following the FS(0) and FS (1) determine the individual field size. Thus FS is defined as a 30 character string made up of two fields, FS(0) and FS(1); with 10 and 20 characters respectively. The only limitation is that the total in the main field cannot exceed 250. The main field (FS) is the small buffer.

The &E is used for extended formatting, allowing for a continuation of the &F. It can be used in FOR/NEXT loops such as:
10 &F, FS=FS(0), L(0) : FOR I = 1 TO 10: &E, FS=FS(I), L(I): NEXT I
This line will format a record with 11 fields with individual lengths as specified by the L array.

Formatting Individual Fields (&L, &R, &M):

The fields may be right or left justified; the remaining space is filled with spaces.

&R,F$(0)="data"; will right justify data and fill the remainder with spaces.
&L,F$(0)= "data"; will left justify data and fill the remainder with spaces.
&M,F$(0) = "data"; will either right of left justify data depending on your choice in the SETUP PROGRAM.

TO STORE A RECORD (&P):

&P, record #; takes the record from the small buffer and stores it in the appropriate location in the large buffer. If the record number is greater than the current record count (i.e. a new record is being added rather than an old one being replaced), the record count is incremented. The current record count is stored in location 37886 decimal.

TO GET A RECORD (&G):

&G, record #; gets the record specified by record # from memory (large buffer) and places it in F$ (the small buffer).

TO SEARCH (&S):

&S, string or substring, record #; will search for whatever is in the small buffer designated by the indicated string or substring, starting with the record # indicated. To use the search, it if first necessary to assign a value to some field or to the entire small buffer (&R,F$(0) = 'something to search for'), then using &S, string or substring, record #, perform the actual search. By setting F$(0) to a value, it is placed in the small buffer area where it is compared to each record in the main buffer area. The record number refers to the record where the search will begin.

TO SORT (&X):

&X, field #, field #, field #; To sort on one or two fields, all the fields must contain a field value. Sorting upon one field is accomplished by placing the same field number in all three field positions. To sort upon two fields, place the primary field in position number one and the secondary field in positions two and three. Sorting upon three fields is accomplished by placing the three fields in their appropriate locations.

TO CATALOG (&C):

&C, \ ,n will find the nth file name on the disk beginning with the character '\'. This name will be placed in the small buffer F$.

LOCATIONS 37886 & 37887

These locations store the current number of records. They are incremented when a record greater than the current record count is entered into the large buffer.

LOCATIONS 802 & 803:

These locations store the number of the record that contains information being searched for using the &S. The value contained in these locations must be less than or equal to the last record currently stored in the large buffer to be valid and must be manually set to zero via the POKE 802,0 and POKE 803,0 after each search, unless you wish to continue searching from the last record found.

USING THE ROUTINES

I. Format the input (&F).
II. Load data into the small buffer via the &L or &R commands.
III. Store record into main buffer (&P).
IV. Retrieve record from main buffer (&G).

Special Notes:

You can put (&P) a record past the last record plus one but not beyond that location. Records can be placed anywhere before that location.

The number of records that the ampersand routines can handle are limited by the Apple's memory and to a maximum of 65535.

SECTION 9.4 – THE DATA REPORTER TABLE OF VARIABLES

```
A$ - TEMP STRING
44 46 48 50 84 88 92 92 104 104 108 108 108 116 132 148 148
148 150 154 192 198 204 206 206 206 206 206 208 224 262 264
264 288 294 312 316 378 378 394 418

A0$ - SINGLE KEY INPUT CHARACTER
10 94 94 94 98 104 104 106 178 330 446

A1$ - USED TO PROPERLY ROUND MONITARY FIELDS
60 60 60 60 62 62 116 116 120 120 122 208 212 314 318 324
360 360 442 442 442

B - ASCII VALUE OF SINGLE KEY INPUT
6 6 8 10 10 10 86 86 86 88 90 92 94 94 96 98 98 98 102
142 158 186 186 218 220 222 232 234 234 236 396 400 420 420
420 420 420

B$ - HOLDS PARAMETERS FOR CURRENT DISK ACCESS
382 384 388 394 400 408 408 420

B(*) - STORES THE THREE SORT FIELD NUMBERS
244 244 244 245 246 246 364

C - NUMBER OF RECORDS APPENDED
164 370 370 388 392 414 420

CH$ - PRINTER LINE FEED CHARACTER
308 320 324 324 326 364

CN - CALL # FOR PRINTER
66 66 364

CS - FLAG FOR LINE EDITING
78 362 362 370

CT - COUNTER FOR RECORDS FOUND IN A SEARCH
44 44 58 272 370

CV - CURSOR VERTICAL POSITION
76 76 78 78 82 110 144 146 152

D$ - RETURN + CTRL-D FOR DISK ACCESS
34 38 38 42 42 42 66 70 70 70 72 72 72 166 232 232 274 304
364 364 364 364 370 370 380 382 386 388 396 396 396 396 400
410 450 454 456 458 460 462 464
```

D$(*) - DISK ACCESS PARAMETER TITLES
378 378

D%(*) - FIELD LENGTHS
14 22 56 132 204 262 364 364 368 368

D(*) - CURRENT SLOT AND DRIVE PARAMETERS
378 378 380 380 380

ED$ - DATA USED FOR GLOBAL EDIT
44 46 48 132

EF - GLOBAL EDIT FIELD #
46 48 50 132 132

F - TEMP USAGE VARIABLE
60 60 62 62 76 96 96 98 120 120 120 244 244 244 244 244 244
244 244 244 244 304 304 320 368 370

F$ - CURRENT RECORD
42 164 196 368 368 414 414 420 422

F$(*) - EACH FIELD OF CURRENT RECORD
14 18 22 28 28 44 46 48 50 78 108 116 116 116 120 120 148
148 204 206 208 208 212 246 246 246 294 312 316 318 318 360
360 360 368 368 438 438 440 442 442

FL - MAXIMUM LENGTH OF AN INPUT STRING
78 100 100 110 132 154 192 192 204 224 262 264 288 304 418

H$(*) - HEADERS FOR FIELDS
204 244 308 338 350 350 364 364

H%(*) - TAB POSITION FOR PRINTING EACH FIELD
308 308 314 318 324 364 364

I - MULTI-USE VARIABLE
12 14 14 16 18 18 18 22 22 24 38 40 42 42 44 44 44 44 44
60 60 60 60 62 72 72 228 228 228 228 230 230 230 230 230 230
266 266 266 272 272 272 274 274 274 274 274 274 308 308 314
314 314 314 314 314 314 316 320 320 324 324 326 326 338 338
338 338 338 340 350 350 350 350 356 356 356 356 358 358 358
364 364 364 364 364 364 366 366 366 368 368 368 368 370 370
370 372 372 372 372 378 378 378 378 378 388 388 388 388 388
388 396 396 426 426 426 426 426 428 432 432 432 440 440 440
440 440 440

I$ - NAME OF CURRENT ON-LINE FILE
58 70 70 72 72 88 130 164 164 164 166 192 374 382 386 388
400 400 402 406 408 416 416 418 418 420 420

J - TEMP USAGE VARIABLE
14 14 22 22 52 78 78 178 178 198 212 224 224 226 226 228 228
228 230 318 318 318 348 348 348 350 354 354 354 356 388 388
394 394 396 412 414 420 422 422 426 428 432 432 432 440 440
440 440 440 442

J1 - # OF CHARACTERS INPUT DURING A STRING INPUT
76 84 86 88 92 92 92 92 94 100 100 104 106 106 108 110 110
110 110

K - TEMP USAGE COUNTER
14 14 14 22 22 22 388 388 412 414 414 414 414 414 422 438

M$(*) - MAIN MENU OPTIONS
366 372 374 374

M% - TEMP USAGE VARIABLE
108 108 108 230 230 230 230 230 230 388 388 388

MD - MENU ITEM CURRENTLY EXERCISED
86 116 166 178 194 212 284 342 358 362 362 370

MN(*) - MINIMUMS FOR SEARCH
18 264

MX(*) - MAXIMUMS FOR SEARCH
18 264

N - # OF RECORDS
28 54 108 108 108 108 112 124 150 152 154 166 166 192 194 200
200 200 226 226 228 228 230 230 230 230 242 300 364 370 374
386 386 388 388 388 388 388 388 390 390 394 394 404 440

N$ - TEMP FILE NAME STORAGE
396 396 396 396 402 404 404 404 406 420

N% - # OF RECORDS IN FILE APPENDED
70 72 388 388 388 388 390 404

NF - # OF FIELDS
44 116 116 116 116 116 126 178 180 198 202 214 260 272 294
296 308 308 314 314 318 324 324 336 338 342 346 348 354 360
360 364 364 364 364 364 364 368 440 440 444

NR - POINTER TO LOCATION 37886 - # OF RECORDS FOR MACH. LANG.
108 108 164 164 166 166 192 192 230 230 364 370 370 388 388
396 396

NS$ - PREVIOUS CONTENTS OF FIELD BEING EDITED
76 78 80 80 80 80 80 82 94

P$ - PRINTER CONTROL CHARACTERS
66 364

PC - PAGE COUNT FOR SCREEN DISPLAY
76 116 116 178 178 194 198 198 198 198 208 212 212 212 218
218 346 346 346 346 348 350 350 354 356 356 358 358 370 442
442 442 446 446

PN - PAGE # FOR PRINTER
288 308 308 308

Q - INDEX TO DATA FILES
162 164 172 172

Q$ - NAME OF APPLICATION DISK
364 372 372

Q1 - QUICK LIST FIELD 1
148 364

Q2 - QUICK LIST FIELD 2
148 148 364

R%(*) - FIELD ATTRIBUTE (SEE TECHNICAL SECTION FOR VALUES)
116 120 204 308 314 314 318 324 324 360 364 364 442

RC - # OF RECORDS PRINTED ON A GIVEN PAGE
288 306 308 316 316 320 320 320 326 326 366

RD - MAXIMUM # OF RECORDS POSSIBLE ON-LINE
194 364 374 388 390 404

RF - POINTER TO LOCATION 800 - USED BY SEARCH
26 26 28 28 230 230 230 230 364 370 370

RJ - RIGHT JUSTIFY FLAG
364 368

RL - RECORD LENGTH
38 70 70 72 72 364 386 386 388 388 396

RM - RECORDS MODIFIED FLAG
50 158 166 170 200 220 256 328 382 386

RN - # OF DISK DRIVES OF VOLUMES FOR MULTIPLE DISK USAGE
58 134 136 136 136 136 256 258 272 274 298 370

RN(*) - VALUES FOR DRIVES OR VOLUMES FOR MULTIPLE DISK USAGE
136 274

RP - RECORDS THAT CAN BE PRINTED PER PAGE
288 306 320 326 326 364 366

S - RECORD # OF LAST RECORD FOUND BY A SEARCH
26 28 28 28 28 28 28 28 30 30 50 52 54

S$(*) - SEARCH KEYS
14 14 22 22 28 56 56 56 262 438

SF - # OF SEARCH FIELDS
30 30 260 260

SF(*) - FIELD #'S OF FIELDS TO BE SEARCHED
14 14 18 22 22 28 28 56 260 262 266 266 438

SM(*) - SEARCH MODE FOR EACH FIELD SEARCHED
28 30 30 30 56 262 438

SN - SLOT # FOR PRINTER
66 364

SR - SEARCH FLAG
168 188 216 250 260 272 318 334 336 370

SR(*) - SEARCH RESULTS
32 34 36 44 46 48 50 52 58 132 250 252 254 274 274 276 276
298 298 370

SS - SINGLE SHEET FLAG FOR FORM OUTPUT
320 364

ST - SUBTOTAL FLAG
290 294 294 294 312 312 316 370

T - TEMP USAGE VARIABLE
30 52 108 108 148 150 150 150 150 152 154 154 154 154 166 166
194 194 210 220 220 220 226 226 228 228 230 230 236 236 236
242 242 242 280 294 300 300 300 306 346 346 370

T1 - FLAG FOR ENTERING DATA INTO A FIELD
76 204 204 370

T2 - TEMP USAGE VARIABLE
220 220

T3(*) - SUBTOTALS
296 314 314 318 318

TF - TOTAL FLAG FOR HORIZONTAL TOTALS
202 364

TL(*) - TOTALS FOR EACH FIELD
44 44 272 296 318 318 324 440 440 440 442

U - FIELD INDEX
72 76 78 108 116 120 120 120 180 198 198 198 202 204 204 204
204 206 208 208 208 212 212 212 212 244 244 244 244 296 296
296 296 308 308 308 308 310 318 318 318 318 318 318 318 318
318 320 324 324 324 324 326 358 360 360 390 390 390 390 396
396 396 442 442 442 442 442 442 444

V - VOLUME #
38 38 42 42 70 70 72 72 166 380 382 386 388 396 396 396 400
410

VT - CURSOR VERTICAL POSITION
308 320 364

W - INDICATES NEXT PROGRAM TO RUN
124 124 124 132 132 136 136 136 136 136 136 180 180 180 186
186 186 186 188 188 188 244 250 250 250 260 260 262 262 262
264 266 268 270 278 278 278 282 282 284 284 294 374 374 376
378 378 378 378 380 404 406 416 436 436 436 454

Y - INDEX TO RN ARRAY
274 274 274

Z - INDEX TO SM ARRAY
14 14 14 14 18 18 18 22 22 22 22 30 30 30

Z1 - OPERAND FIELD
3 364

Z2 - OPERAND FIELD
3 364

Z3 - CALCULATED FIELD
3 203 364

Z4 - OPERAND
364 366

SECTION 9.5 — LOWER CASE CHIP SOURCES

The special display hardware that will allow your Apple to correctly display lower case characters is available from a number of sources. The list below is not exhaustive, nor does *Synergistic Software* endorse, guarantee, or even recommend these products. The list is merely provided as a convenience to help you locate some of the sources. All prices were valid on the listed dates but may have since changed.

Manufacturer	Product Name	Price	Date
1. VIDEX 897 NW Grant Ave. Corvallis, OR 97330 (503) 758-0521	Keyboard & Display Enhancer	$129.00	5/81
2. Lazer Micro Systems Inc. P.O. Box 55518 Riverside, CA 92517 (714) 682-5268	Lower Case+Plus	$ 59.95	4/81
3. Enhanceware (Dan Paymar) 91 Pioneer Place Durango, CO 81301 (303) 259-3598	Lower Case Adapter-1	$ 59.95	4/81
	Lower Case Adapter-2	$ 49.95	4/81

SYNERGISTIC SOFTWARE
5221 120th Ave. S.E.
Bellevue, WA 98006

THE DATA REPORTER

ERRATA SHEET 1

1. Page 13 of the document incorrectly lists the amount of space available for on-line storage of data. There is actually room for 22180 characters. Thus the Table 2.3 of Record Length vs. Records Per File also requires restating as below.

Record Length	Records Per File
10	2218
20	1109
30	739
50	443
75	295
100	221
125	177
150	147
200	110
250	88

For those users of the Modifiable Database whose files were completely full, the files will need to be split in two to run on the Data Reporter. The Setup Program which converts the Modifiable Database files will automatically divide the files if required. After conversion, the files can be sort/merged or appended to put them in the desired format.

2. In order to convert Modifiable Database files to the format accessable by the Data Reporter, the data disk must be in DOS 3.3. If you have not already done so, MUFFIN the data disk before converting the files with the Data Reporter.

3. For the Report Generator, Edit Mode, page 48, the command Zap A Word is incorrectly described. The cursor should instead be placed over the first letter of the word to be deleted. Thus, in the example FLY AFAR TOGETHER, the cursor would be placed over the first A of AFAR to zap AFAR.

DOCUMENTATION ERRORS: (The corrected portion of each line is underlined.)

1. On page 40, the next to the last paragraph should read:

"Choosing number 1 above will cause ...."

2. The 'OR' search listed on page 72 has 2 errors.

Line 28 should read:

```
28 S = S + 1
```

Line 30 should read:

```
30 &G, S: T = S: FOR Z = 1 TO SF: ON SM(Z) GOSUB 14, 18, 22:
   NEXT Z: GOTO 28
```

3. On page 72, inputting random access text files, Line 395 has a spurious = character in it and is missing an ONERR command. The line should read:

```
395 ... N$: PRINT D$ "OPEN" N$",L"L: I = 1: ONERR GOTO 397
```

Line 397 should read:

```
397 POKE 216, 0: GOTO 370
```

4. On page 73, Lines 1615 and 1617 should now both be RETURNs, not REMs.

```
1615 RETURN

1617 RETURN
```

5. To input sequential text files, use:

```
395 INPUT "ENTER FILE NAME TO CONVERT?"; N$: PRINT D$
    "OPEN" N$: PRINT D$ "READ" N$: ONERR GOTO 397

396 FOR J = 0 TO NF-1: INPUT A$: &L, F$(J) = A$: NEXT J:
    &P, N + 1: N = N + 1: GOTO 396

397 POKE 216, 0: GOTO 370
```